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BINAH DEVELOPMENT PTY LTD

Detailed Site Investigation

26 Elizabeth Street, Liverpool, NSW

Report E23796.E02_Rev1

9 November 2018

REPORT DISTRIBUTION

Detailed Site Investigation
26 Elizabeth Street, Liverpool NSW

EI Report No.: E23796.E02_Rev1
Date: 9 November 2018

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1	Soft Copy (PDF – Secured, issued by email)	**Binah Development Pty Ltd** Suite 7, Level 3, 26 Castlereagh Street, Liverpool
	Original (Saved to Digital Archives)	**EI Australia** Suite 6.01, 55 Miller Street, PYRMONT NSW 2009

Author	Technical Reviewer
SHARON LI Environmental / Geotechnical Scientist	**TONY GUIRGUIS** Senior Engineer

Revision	Details	Date	Amended By
0	Original	25 May 2018	-
1	Revised Development Plan	9 November 2018	S.L.

EXECUTIVE SUMMARY

The property located at 26 Elizabeth Street, Liverpool NSW was the subject of a Detailed Site Investigation that was conducted in order to assess the nature and degree of on-site contamination associated with current and former uses of the property. Based on the findings of this assessment it was concluded that:

Proposed Development

Based on proposed development plans provided by the client (Ref. Rothelowman, Project No. 218004, dated 14 September 2018), it is understood that the site covers an area of approximately 3,144 m2, is currently occupied by commercial / industrial buildings and car parking at grade. Based on preliminary plans, EI understands that the proposed development involves the demolition of the existing site structures and construction of a multi-level apartment building with five podium levels and four levels of basement car parking. No deep soil planting is proposed.

Desktop Study

- As shown in **Figure 1**, the site is located the main business district of Liverpool and is situated within the Local Government Area of Liverpool City Council. The land parcel covers a total area of approximately 3,144 m^2, as depicted in the site plan presented as **Figure 2**;
- Site land title records indicated that the site had be owned by Peter Warren (Properties) Pty Ltd (motor trader) since 1967 to 2015;
- Historic aerial photography showed that from the 1930s the surrounding land use consisted of predominantly residential developments, with the site bound on the north by Elizabeth Street. From the 1960s increased commercialisation along Elizabeth Street occurred until the 1990s, from which point the surrounding area remained relatively unchanged until the present day;
- Site history records held by Liverpool City Council were not available at the time of this assessment;
- SafeWork searches were completed for the site located at 26 Elizabeth Street, Liverpool NSW and no records pertaining to the site were held.
- EPA – Notified / Listed / POEO:

  There are no sites with any regulatory notices, listed as contaminated or on the POEO Public Register issued by the EPA within 500 m of the site.

Intrusive Investigations

- The sub-surface layers comprised anthropogenic filling overlying natural clays;
- Groundwater inflow was encountered at 4.8 mBGL in BH1M, 8.3 mBGL in BH2M, 6.1 mBGL in BH8M. Standing Water Levels (SWLs) collected during the Groundwater Monitoring Event (GME) were reported at 3.25 mBGL, 2.99 mBGL, 3.23 mBGL;
- Groundwater flow direction was indicated to the south-west based on monitoring of the installed wells;

- Results of soil samples collected from soil test boreholes indicated the following:
  - Concentrations of asbestos were detected within fill sample BH2M 0.2-0.3;
- Results of Groundwater samples collected from groundwater wells indicated the following:
  - Chromium, copper, nickel and zinc exceeded the ANZECC / ARMCANZ (2000) Marine Water criteria;
- Previously known data gaps, as outlined in the CSM (**Section 4**), have largely been addressed; however, the following data gaps remain and require closure by additional investigation:
  - Presence of hazardous building materials used in construction of site structures;
  - Investigation of the concrete patched area at the rear portion of the service centre; and
  - Soil sampling areas which were inaccessible due to existing buildings / infrastructure.

Conclusions

Based on the findings from this DSI conducted in accordance with the investigation scope agreed with the Client, and with consideration of the Statement of Limitations (Section 12), EI conclude localised soil contamination was observed and will require remediation. A number of data gaps exist that will require further investigation (post-demolition of existing structures to enable access).

Based on EI's experience, heavy metals concentration exceeding water quality criteria are ubiquitous in groundwater systems in long-standing urban/industrial environments such as Liverpool. Whether these results are treated as exceedances of criteria, or representative of urban background groundwater conditions, the identified groundwater concentrations are not considered to represent a cause for environmental concern.

In view of the proposed development scope, and currently available information, EI consider that the contamination identified can be remediated to render the site suitable for the proposed land use, provided recommendations detailed in Section 11 are implemented.

EI note that the site contamination issues can be managed through the development application process in accordance with the State Environmental Planning Policy 55 (SEPP 55) – Remediation of Land, with the requirements for remediation and validation incorporated into conditions of development consent.

Recommendations

Based on the findings of this DSI, the following recommendations will be required to be implemented before the site can be confirmed as suitable for the proposed development:

- A Hazardous Materials Survey should be completed by a suitably qualified and experienced consultant, before commencement of demolition works, to identify any hazardous materials present within the building structure. All identified hazardous materials must be appropriately managed and to maintain worker health and safety during site construction works;

- Preparation of a remedial action plan (RAP) that outlines:

  i. Supplementary investigations:

     a. Further soil investigation to assess inaccessible soils and risk to construction phase and future site users including investigation of the concrete patched area at the rear portion of the service centre.

     b. Further soil sampling to aid in classification of fill for disposal purposes.

  ii. Development of suitable remediation options for identified impacted fill (asbestos) and other excess soil by excavation and disposal or other appropriate method.

  iii. Document waste classification assessment of soil earmarked for any excavation that may occur including piling waste, backfill material from excavations at the site, in accordance with the EPA (2014) *Waste Classification Guidelines*;

  iv. Document preliminary environmental management consideration and a preliminary validation sampling and quality plan.

- Implementation of the RAP, and

- Preparation of a final site validation report by a suitably qualified environmental consultant, certifying site suitability of soils and groundwater for the proposed land use.

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1. INTRODUCTION

1.1 BACKGROUND AND PURPOSE

Binah Development Pty Ltd engaged EI Australia (EI) to conduct a Detailed Site Investigation for site characterisation purposes at the site located at 26 Elizabeth Street, Liverpool NSW ('the site').

As shown in **Figure 1**, the site is located approximately 27 km south-west of the Sydney Central Business District (CBD) and is situated within the Local Government Area of Liverpool City Council. The land parcel covers a total area of approximately 3,144 m^2, as depicted in the site plan presented as **Figure 2**.

This assessment was conducted to support a Development Application (DA) to the Liverpool City Council for the redevelopment of the site and for the purpose of enabling the developer to meet their obligations under the *Contaminated Land Management Act 1997* (CLM Act), for the assessment and management of contaminated soil and/or groundwater.

1.2 PROPOSED DEVELOPMENT

Based on proposed development plans (**Appendix A**) provided by the client (Ref. Rothelowman, Project No. 218004, dated 14 September 2018), it is understood that the site covers an area of approximately 3,144 m^2, is currently occupied by commercial / industrial buildings and car parking at grade. Based on preliminary plans, EI understands that the proposed development involves the demolition of the existing site structures and construction of a multi-level apartment building with five podium levels and four levels of basement car parking. No deep soil planting is proposed.

1.3 REGULATORY FRAMEWORK

The following regulatory framework and guidelines were considered during the preparation of this report:

- ANZECC & ARMCANZ (2000) *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*;
- Liverpool Local Environmental Plan, 2008;
- Liverpool Development Control Plan, 2008;
- DEC (2007) *Guidelines for the Assessment and Management of Groundwater Contamination*;
- EPA (1995) *Sampling Design Guidelines*;
- EPA (2017) *Contaminated Land Management: Guidelines for the NSW Site Auditor Scheme (3rd Edition)*;
- NEPC (2013) *Schedule B(1) Guideline on Investigation Levels for Soil and Groundwater*;
- NEPC (2013) *Schedule B(2) Guideline on Site Characterisation*;
- *Contaminated Land Management Act 1997*;
- State Environment Protection Policy 55 (SEPP 55) – *Remediation of Land*, and
- OEH (2011) *Guidelines for Consultants Reporting on Contaminated Sites*.

1.4 PROJECT OBJECTIVES

The primary objectives of this investigation were to:

- Evaluate the potential for site contamination on the basis of historical land uses, anecdotal and documentary evidence of possible pollutant sources;
- To investigate the degree of any potential contamination by means of limited intrusive sampling and laboratory analysis, for relevant contaminants; and
- Where site contamination is confirmed, make recommendations for the appropriate management of any contaminated soils and/or groundwater.

1.5 SCOPE OF WORKS

In accordance with EI fee proposal P15422.1 (dated 5 April 2018), to achieve the above objectives, the following scope of works was adopted:

1.5.1 Desktop Study

- A review of relevant topographical, geological, hydrogeological and soil landscape maps for the project area;
- A review of all previous environmental reports;
- Search of historical aerial photographs archived at NSW Land and Property Information in order to review previous site use and the historical sequence of land development in the neighbouring area;
- Search of NSW WorkCover (SafeWork NSW) records for information relating to possible underground tank approvals and locations, and other potential dangerous goods;
- Site history survey involving a detailed search of council records for information relating to operational site history and/or relevant environmental incidents;
- A land titles search, also conducted through NSW Land and Property Information for information relating to site ownership; and
- A search through the NSW EPA Land Information records to confirm that there are no statutory notices current on the site under the *Contaminated Land Management Act 1997* or *Protection of the Environment Operations Act 1997.*

1.5.2 Field Work & Laboratory Analysis

- Preparation of a Work Health, Environment and Safety Plan (WHSEP);
- A review of existing underground services on site;
- A detailed site walkover inspection;
- Drilling of boreholes at nine (9) locations distributed across accessible areas of the site;
- Installation of three (3) groundwater monitoring wells to a maximum depth of 12 mBGL (or prior refusal), constructed to standard environmental protocols to investigate potential groundwater contamination;

- Multiple level soil sampling within fill and natural soils and three groundwater samples from the constructed groundwater monitoring well; and
- Laboratory analysis of selected soil and groundwater samples for relevant analytical parameters as determined from the site history survey and field observations during the investigation programme.

1.5.3 Data Analysis and Reporting

A DSI report would also be prepared to document desk study findings, the conceptual site model, data quality objectives, investigation methodologies and results. The report would also provide a record of observations made during the detailed site walkover inspection, borehole and monitoring well construction logs and a discussion of laboratory analytical results in regards to potential risks to human health, the environment and the aesthetic uses of the land.

This report was generally done in accordance with the Guidelines on Consultant Reporting on Contaminated Sites (OEH, 2011).

2. SITE DESCRIPTION

2.1 PROPERTY IDENTIFICATION, LOCATION AND PHYSICAL SETTING

The site identification details and associated information are presented in **Table 2-1**, while the site locality is shown in **Figure 1**.

Table 2-1 Site Identification, Location and Zoning

Attribute	Description
Street Address	26 Elizabeth Street, Liverpool NSW
Location Description	The site is located in the main business are of Liverpool, bounded by Elizabeth Street (north), governmental properties (south), a car parking (east) and a car parking (west).
Site Coordinates	North east corner of the site (GDA94-MGA56): Easting: 308328.476 Northing: 6244709.722 (Source: http://maps.six.nsw.gov.au).
Site Area	3,144 m^2 (Ref. mpa. Drawing title. SK01; drawing no. AP01; project. Proposed subdivision plan)
Lot and Deposited Plan (DP)	Lot 1 in DP 217460; Lot 10 in DP 621840
State Survey Marks	The Survey Mark in closest proximity to the site is SS3941D located approximately 56 m from the north east corner of the site, on the corner of Elizabeth Street and Bigge Street. (Source: http://maps.six.nsw.gov.au).
Local Government Authority	Liverpool City Council
Parish	St. Luke
County	Cumberland
Current Zoning	B2 – Local centre (Liverpool Local Environmental Plan, 2008)
Current Land Uses	26 Elizabeth Street, Liverpool NSW – commercial / industrial buildings *As shown in **Figure 2**.*

2.2 SURROUNDING LAND USE

The site is situated within an area of local centre with commercial and industrial uses. Current uses of surrounding land are described in **Table 2-2**.

Table 2-2 Surrounding Land Uses

Direction	Land Use Description	Sensitive Receptors (& distance from site)
North	The northern boundary is occupied by Elizabeth Street.	All Saints' Catholic Church Liverpool (approx. 80 m).
South	The southern boundary is occupied by Liverpool Court House.	Adjacent residential properties.
East	Waines Crescent followed by Bigge Street.	Bigge Park (approx. 120 m).
West	The George Street, followed by commercial properties.	Sumer Child Care (approx. 330 m).

2.3 Regional Setting

Regional topography, geology, soil landscape and hydrogeological information are summarised in **Table 2-3**.

Table 2-3 Regional Setting Information

Attribute	Description
Ground Topography	The site slopes gently to the north, from approximate RL 12.85 mAHD at the north-east corner to approximate RL 13.10 mAHD at the south-east corner. (Ref. Project surveyors, 2018. Job Ref. D4118, dated 26 March 2018).
Site Drainage	As large areas of the site are concrete driveway, stormwater is expected to drain to the north to the council stormwater system.
Regional Geology	With reference to the 1:100 000 scale Geological Series Sheet 9030 (Penrith) the site is likely to be underlain by Bringelly Shale (Rwb). Bringelly Shale is described as *carbonaceous claystone, claystone, laminite, fine to medium-grained lithic sandstone, rare coal and tuff*.
Soil Landscapes	The Soil Conservation Service of NSW Soil Landscapes of the Sydney 1:100,000 Sheet (Chapman and Murphy, 1989) indicates that the site overlies a Residual Landscape – Blacktown, which typically includes gently undulating rises on Wianamatta Group shales.
Acid Sulfate Soil Risk (also see separate report)	With reference to the 1:25 000 scale, Liverpool Acid Sulfate Soil (ASS) Risk Map (Murphy, 1997), the subject land lies within the map class description of '*no known occurrence.'* As the site is underlain by Bringelly Shale, ASS is not expected to be present. The Liverpool Local Environmental Plan (2008) Acid Sulfate Soils Map (Sheet ASS_011 shows the site to be within areas mapped as *Class 5* Acid Sulfate Soils (ASS). Class 5 areas are likely to locate ASS during works within 500 metres of adjacent Class 1, which are likely to lower the water table below 1 metre AHD on adjacent Class 1 land. Given that the proposed development is within 500 m from Class 1 land, ASS are likely to be encountered during the works and an ASS Assessment is required.
Likelihood & Depth of Filling	Based on observations during the intrusive investigations, the maximum fill depth noted to occur on site was approximately 0.7 mBGL.

Attribute	Description
Typical Soil Profile	Thin surficial clayey fill overlying weathered shale. • Anthropogenic fill; • Residual soil; and • Natural Shale bedrock.
Depth to Groundwater	Groundwater inflow was encountered at 4.8 mBGL in BH1M, 6.1 mBGL in BH8M and 8.3 mBGL in BH2M. Onsite groundwater conditions, including groundwater flow direction, are discussed in **Section 9.2**.
Nearest Surface Water Feature	Georges River, located approximately 420 m south east of the site. The river flows in a west to east direction into Botany Bay. The Georges River is tidal to Liverpool Weir and is considered to be a marine receptor for assessment purposes.
Anticipated Groundwater Flow Direction	Based on the local topography and the nearest surface water feature, groundwater flow direction is anticipated to be south-easterly towards Georges River located approximately 420 m south-east of the site.

2.4 Groundwater Bore Records and Groundwater Use

An online search of registered groundwater bores was conducted by EI on 21 May 2018 through the NSW Office of Water (Ref. http://allwaterdata.water.nsw.gov.au/water.stm), which records relevant information pertaining to licensed water bores for the state of New South Wales. The search did not identify any registered bores within 500 m of the site, as illustrated in the registered bore location plan attached in **Appendix B**.

2.5 Site Walkover Inspection

Site observations were recorded during a site walkover inspection on 20 April 2018. A summary of site observations is detailed below and site photographs taken during the inspection are present in **Appendix C**.

- The site was occupied by a car service centre and a car parking (Warren Toyota), with the adjacent area mainly concrete paved hardstand;
- The western portion of the site was occupied by a service centre, and a concrete patched area was found at the rear portion of the warehouse (see **Photo C1**). The concrete feature was approximately 2m x 2m in size. UST vent pipes or bowser plinths were not observed during the walkover;
- Various building wastes and unwanted materials from building works were piled on the eastern boundary of the service centre (see **Photo C6**);
- Potential lead paint and asbestos contain materials (ACM) were observed around the service centre (see **Photo C5**); and
- Broken sheets of potential covered bonded ACM were observed inside the building adjacent to the carpark (see **Photo C2**).

3. SITE HISTORY AND SEARCHES

3.1 SITE LAND TITLES INFORMATION / HISTORIC AERIAL REVIEW

A historical land titles search was conducted through Infotrack Pty Ltd. Copies of relevant documents resulting from this search are presented in **Appendix D**. A summary of all the previous and current registered proprietors along with information obtained from the available historical aerial photographs, in relation to past potential land uses are **Table 3-1**.

Table 3-1 Summary of Site Owners

Date of Acquisition and term held	Registered Proprietor(s) & Occupations (where documented)
Lot 1 in D.P. 217460 the part tinted yellow on the attached cadastre (refer to Appendix D)	
31.12.1910 (1910 to 1936)	Dacres Fitzherbert Evans (Bank Manager) & his deceased estate
26.02.1936 (1936 to 1950)	Ernest Albert Groves (Builder Now Gentleman)
19.06.1950 (1950 to 1962)	Marjorie Winifred Elkington (Married Woman)
27.07.1962 (1962 to 1966)	Peter Howard Warren (Motor Trader)
Lot 1 in D.P. 217460 the part tinted pink on the attached cadastre (refer to Appendix D)	
Documentary Title	
23.06.1915 (1915 to 1921)	Hannah Wadsworth (Married Woman)
28.02.1921 (1921 to 1953)	Mary Whilimena Hammond (Married Woman) Also known as Mary Wilheimina Hammond
10.08.1953 (1953 to 1953)	Henry Leabeater (Carpenter)
13.11.1953	Giuseppi Amalfi (Farmer) & his deceased estate Angelo Amalfi (Farmer) Agostino Amalfi (Farmer) Salvatori Amalfi (Farmer) Alfredo Amalfi (Farmer)
Purported Possessory Title	
1950? (1950 to 1963)	Marjorie Winifred Elkington (Married Woman)
12.03.1963 (1963 to 1966)	Peter Howard Warren (Motor Trader)
Lot 1 in D.P. 217460 the part tinted blue on the attached cadastre (refer to Appendix D)	
Note: Was formerly part of a Reserved Lane 14 feet 6 Inches wide which was claimed by Possessory Application in Primary Application No. 43073 dated 10.05.1966	
Continued as regards the whole of Lot 1 D.P. 217460	
02.12.1966 (1966 to 1976)	Commercial & General Acceptance Limited

Date of Acquisition and term held	Registered Proprietor(s) & Occupations (where documented)
21.05.1976 (1976 to 2015)	Peter Warren (Properties) Pty. Limited
22.09.2015 (2015 to Date)	# Elizabeth Street Partnership Pty Ltd
Lot 10 in D.P. 621840 the part tinted purple on the attached cadastre (refer to Appendix D)	
23.06.1915 (1915 to 1921)	Hannah Wadsworth (Married Woman)
28.02.1921 (1921 to 1953)	Mary Whilimena Hammond (Married Woman) Also known as Mary Wilheimina Hammond
10.08.1953 (1953 to 1953)	Henry Leabeater (Carpenter)
13.011.1953 (1953 to 1967)	Giuseppi Amalfi (Farmer) & his deceased estate Angelo Amalfi (Farmer) Agostino Amalfi (Farmer) Salvatori Amalfi (Farmer) Alfredo Amalfi (Farmer)
25.09.1967 (1967 to 2015)	Peter Warren (Properties) Pty. Limited
Lot 10 in D.P. 621840 the part tinted yellow on the attached cadastre (refer to Appendix D)	
Documentary Title	
31.12.1910 (1910 to 1936)	Dacres Fitzherbert Evans (Bank Manager) & his deceased estate
26.02.1936 (1936 to 1950)	Ernest Albert Groves (Builder Now Gentleman)
19.06.1950 (1950 to 1962)	Marjorie Winifred Elkington (Married Woman)
27.07.1962	Peter Howard Warren (Motor Trader)
Purported Possessory Title	
1955?	Giuseppi Amalfi (Farmer) & his deceased estate Angelo Amalfi (Farmer) Agostino Amalfi (Farmer) Salvatori Amalfi (Farmer) Alfredo Amalfi (Farmer)
25.09.1967 (1967 to 2015)	Peter Warren (Properties) Pty. Limited
Lot 10 in D.P. 621840 the part tinted orange on the attached cadastre (refer to Appendix D)	
Note: Was formerly part of a Reserved Lane 14 feet 6 Inches wide which was claimed by Possessory Application in Primary Application No. 56264 dated 16.12.1982	
Continued as regards the whole of Lot 10 D.P. 621840	
22.09.2015 (2015 to Date)	# Elizabeth Street Partnership Pty Ltd

Notes:
# Denotes Current Registered Proprietor
Leases as regards the whole of Lot 1 D.P. 217460: -

- 02.12.1966 (K570855) – Peter Howard Warren (Motor Trader) – expired 21.05.1976

Leases as regards the whole of Lot 10 D.P. 621840: - NIL
Easements as regards the whole: - NIL

In summary, review of land titles records indicated that the site had be owned by Peter Warren (Properties) Pty. Limited (motor trader) since 1967 to 2015.

3.2 HISTORICAL AERIAL REVIEW

The historical aerial photographs reviewed as part of this DSI included:

- 1930: 10 February 1930, Map 3429, Run 24, B/W, Commonwealth of Australia;
- 1943: Six Maps (https://maps.six.nsw.gov.au/) 1943 Imagery – NSW Department of Finance and Services
- 1951: May 1951, Map NSW 466-111, Run 16, B/W, NSW Lands Photo;
- 1961: September 1961, Map NSW 1042-5133, Run 37W, B/W, NSW Lands Photo;
- 1986: 2 August 1986, Map NSW 3527 (98), Run 24E, NSW Lands Photo;
- 1991: 14 August 1991, NSW 4029, Run 11, Surveyor General Department;
- 2002: 16 March 2002, Map 2302, NSW 4724, Run 11 Department of Lands; and
- 2016: 6 April 2016, Six Maps (https://maps.six.nsw.gov.au/) NSW Imagery – NSW Department of Finance and Services.

Table 3-2 Summary of Historical Aerial Photography

Year	Site description based on historical aerial photographs
1930:	The site appears to be occupied by two dwelling houses and two sheds.
1943:	The land use appears relatively unchanged from the 1930 aerial photograph.
1951:	The land use appears relatively unchanged from the 1943 aerial photograph.
1961:	The land use appears relatively unchanged from the 1951 aerial photograph.
1986:	The western portion of site appears to be occupied by one commercial building. The eastern portion of site appears to be a car parking.
1991:	The land use appears relatively unchanged from the 1986 photograph.
2002:	The land use appears relatively unchanged from the 1991 photograph.
2016:	The land use appears relatively unchanged from the 2002 photograph

In summary, review historic aerial photography showed that from the site had been occupied by commercial building since at least the 1980s. The current day structure had been constructed sometime between 1961 and 1986.

3.3 SURROUNDING LANDS HISTORICAL AERIAL PHOTOGRAPHY REVIEW

As part of the Site Land Titles Information / Historic Aerial Review, an assessment of surrounding land uses using historical aerial photographs sourced from NSW Land and Property Information was carried out. A summary of the pertinent information identified at surrounding land parcels from the reviewed photographs is presented in **Table 3-3**.

Table 3-3 Summary of Aerial Photograph Review

Aerial Photograph	Surrounding land uses based on historical aerial photographs
1930	**North**: The surrounding land appears to be occupied by residential structures with multiple areas of vacant land. **South:** The surrounding land appears to be vacant land. **East:** The surrounding land appears to be occupied by residential structures with multiple areas of vacant land. **West:** The surrounding land appears to be occupied by residential structures with multiple areas of vacant land. Surrounding land was primarily occupied by what appears to be residential properties being bound to the north by The Elizabeth Street.
1943	Surrounding land use remained relatively unchanged since the 1930 aerial photograph.
1951	The surrounding land uses remained relatively unchanged from the 1943 aerial, with the exception of: **North:** Further dwelling development along north sides of Elizabeth Street.
1961	Surrounding land use remained relatively unchanged since the 1951 aerial photograph.
1986	**North:** Further commercial development along north side of Elizabeth Street. **West:** Further commercial development along west side of George Street. **South:** Further commercial development along south boundary of the site.
1991	Surrounding land use remained primarily unchanged since the 1986 aerial photograph.
2002	Surrounding land use remained primarily unchanged since the 1991 aerial photograph.
2016	Surrounding land use remained primarily unchanged since the 2002 aerial photograph.

In summary review of historic aerial photography showed from the 1930s the surrounding land use consisted of predominantly residential developments, with the site bound on the north by Elizabeth Street. From the 1960s increased commercialisation along Elizabeth Street occurred until the 1990s, from which point the surrounding area remained relatively unchanged until the present day.

3.4 Council Information

Site history records held by Liverpool City Council were not available at the time of this assessment. These records have been requested from Council and once received if there are any issues raised, this DSI report will be amended accordingly in the form of an addendum.

3.5 SafeWork NSW Records Search

A search of SafeWork NSW Authority records relating to the site was requested by EI. Correspondence dated 24 April 2018 from the Dangerous Goods Licensing Section (**Appendix E**), confirmed that a search of Stored Chemical Information Database (SCID) and the microfiche records held by SafeWork was conducted and revealed that no records pertaining to the site were held.

3.6 EPA Online Records

On 21 May 2018, an on-line search of the contaminated land public record of NSW Environment Protection Authority (EPA) Notices was conducted. This search confirmed that the NSW OEH had no regulatory involvement in relation to the area of investigation, or properties in proximity to the site. The contaminated land public record is a searchable database of:

- Orders made under Part 3 of the *Contaminated Land Management Act 1997* (CLM Act);
- Approved voluntary management proposals under the CLM Act that have not been fully carried out and where the approval of the EPA has not been revoked;
- Site Audit Statements provided to the EPA under Section 53B of the CLM Act that relate to significantly contaminated land;
- Where practicable, copies of any documentation formerly required to be part of the public record; and
- Actions taken by the EPA under Sections 35 and 36 of the *Environmentally Hazardous Chemicals Act 1985*.

A search through the List of NSW Contaminated Sites notified to the EPA under Section 60 of the CLM Act 1997 was also conducted on 21 May 2018. This list is maintained by NSW EPA and includes properties on which contamination has been identified. Not all notified land is deemed to be impacted significantly enough to warrant regulation by the EPA. The site was not notified as contaminated to the EPA, and no other notified or regulated sites are located within a 500 m of the site.

A search of the Protection of the Environment Operations (POEO) Act public register, regarding environmental protection licences, applications, notices, audits, pollution studies, and reduction programmes did not identify any sites with records within a 500 m proximity to the site.

In summary, the potential for contamination from offsite sources is considered low. No notified sites were identified as being within a 500 m up gradient proximity to the site, as such the site is deemed as having low potential for on-site migration of contamination.

4. CONCEPTUAL SITE MODEL

In accordance with NEPM (2013) *Schedule B2 – Guideline on Site Characterisation* and to aid in the assessment of data collection for the site, EI developed a preliminary conceptual site model (CSM) as part of this investigation to assess plausible pollutant linkages between potential contamination sources, migration pathways and receptors. The CSM provides a framework for the review of the reliability and useability of the data collected and to identify data gaps in the existing site characterisation.

4.1 SUBSURFACE CONDITIONS

The sub-surface layers were comprised of clay-dominated, filling materials (ranging in thickness from 0.2-0.55 m), overlying low to medium plasticity, silty clay (ranging in thickness from 4.5-7.5 m), overlaying weathered shales.

4.2 POTENTIAL CONTAMINATION SOURCES

On the basis of the findings of the current investigation, potential contamination sources are as follows:

- Unknown type and concentration of contaminants within any anthropogenic fill imported to the site for levelling or other purpose;
- Weathering of building structures (i.e. painted surfaces, metallic structures, cement-fibre sheeting, etc.);
- Historic and current commercial use of the site (including, service centre, motor trader);
- Possible impacts from historic use of pesticides beneath site structures;
- Spills and leaks from parked vehicles;
- Storage of hazardous chemicals, including potential USTs;
- Hazardous materials, including ACM from building products used onsite.

4.3 CONTAMINANTS OF POTENTIAL CONCERN

Based on the findings of the current investigation, the potential contaminants at the site are considered to be:

- **Soil** - heavy metals (HM), total recoverable hydrocarbons (TRH), the monocyclic aromatic hydrocarbon compounds *benzene, toluene, ethyl-benzene* and *xylenes* (BTEX), polycyclic aromatic hydrocarbons (PAH), organochlorine and organophosphorus pesticides (OCP/ OPP), polychlorinated biphenyls (PCB) and asbestos.
- **Groundwater** - HM, TRH, BTEX, PAH and Volatile Organic Compounds (VOCs) and Phenols.

4.4 POTENTIAL SOURCES, EXPOSURE PATHWAYS AND RECEPTORS

Potential contamination sources, exposure pathways and human and environmental receptors that were considered relevant for this assessment are summarised along with a qualitative assessment of the potential risks posed by complete exposure pathways in **Table 4-1**.

Table 4-1 Conceptual Site Model

Site Area	Subsurface Profile	Potential Sources	Potential Contaminants	Media	Sensitive Receptor	Migration & Exposure Pathways
Entire site	Fill overlying natural CLAY	Fill soils of unknown origin, impacts from previous commercial/ industrial activities (including metal sheeting workshop), potential residues from pesticide use, weathering of building structures and spills from parked vehicles.	HM, TRH, BTEX, PAH, OCP/ OPP, VOC, PCB and asbestos.	Soils/Bedrock Groundwater Air/Soil Vapour LNAPL/DNAPL (if present)	Georges River Construction / maintenance workers Future site occupants Offsite residents and commercial works	Dermal Contact. Ingestion. Inhalation. Seepage into the subsurface soils, bedrock and groundwater Erosion of soils following removal of any concrete.
Hazardous Materials storage areas including potential USTs	Fill overlying natural CLAY	Storage of hazardous chemicals	HM, TRH, BTEX, PAH, OCP/ OPP, VOC, PCB and asbestos.	Soils/Bedrock Groundwater Air/Soil Vapour LNAPL/DNAPL (if present)	Georges River Construction / maintenance workers Future site occupants Offsite residents and commercial works	Dermal Contact. Ingestion. Inhalation. Seepage into the subsurface soils, bedrock and groundwater. Erosion of soils following removal of any concrete.
Building Structure	Fill overlying natural CLAY	Potential hazardous building materials	Heavy metals, PCBs, asbestos	Hazardous materials (i.e paint and asbestos)	Construction / maintenance workers Offsite residents and commercial works	Inhalation and dermal.

4.5 DATA GAPS

Based on information from the site walkover inspection and site history review, a program of intrusive sampling and analysis was warranted, to complement the updated history. The field investigation component is to target locations of potential sources of contamination (as listed in Section 4.1) and complement the previous site investigation by ultimately providing a systematic assessment of the site.

5. SAMPLING, ANALYTICAL AND QUALITY PLAN (SAQP)

The SAQP ensures that the data collected during this investigation is representative, and provide a robust basis for site assessment decisions. This SAQP includes the following:

- Data quality objectives, including a summary of the objectives of the ESA;
- Investigation methodology including media to be sampled, details of analytes and parameters to be monitored and a description of intended sampling points;
- Sampling methods and procedures;
- Field screening methods;
- Analysis Methods;
- Sample handling, preservation and storage; and
- Analytical QA/QC.

5.1 DATA QUALITY OBJECTIVES (DQO)

In accordance with the USEPA (2006) *Data Quality Assessment* and the EPA (2017) *Guidelines for the NSW Site Auditor Scheme*, the process of developing Data Quality Objectives (DQO) was used by the EI assessment team to determine the appropriate level of data quality needed for the specific data requirements of the project. The DQO process that was applied for this assessment is documented in **Table 5-1**.

Table 5-1 Summary of Project Data Quality Objectives

DQO Steps	Details	Comments (changes during investigation)
1. State the Problem Summarise the contamination problem that will require new environmental data, and identify the resources available to resolve the problem; develop a conceptual site model	The former commercial site located at 26 Elizabeth Street, Liverpool NSW is to be redeveloped for more sensitive land-use and requires a contamination assessment in accordance with SEPP 55. This investigation is required to characterise the condition of the site soil and groundwater and enable the developer to meet their obligations under the *Contaminated Land Management Act 1997* (CLM Act), for the assessment and management of contaminated soil and/or groundwater.	-
2. Identify the Goal of the Study (Identify the decisions) Identify the decisions that need to be made on the contamination problem and the new environmental data required to make them	Based on the objectives outlined in **Section 1.4,** the decisions that need to be made are • Has the nature, extent and source of any soil or groundwater impacts onsite been defined? • What impact do the site specific, geologic and hydrogeological conditions have on the fate and transport of any impacts that may be identified? • Does the level of impact coupled with the fate and transport of identified contaminants represent an unacceptable risk to identified human and/or environmental receptors on or offsite? • Does the collected data provide sufficient information to allow the suitability of the site to be determined, or selection and design of an appropriate remedial strategy, if necessary? • If the data does not provide sufficient information, what data gaps require closure to enable the suitability of the site to be determined, or selection and design of an appropriate remedial strategy?	

<table>
<tr><th>DQO Steps</th><th>Details</th><th>Comments (changes during investigation)</th></tr>
<tr><td>3. Identify Information Inputs (Identify inputs to decision)
Identify the information needed to support any decision and specify which inputs require new environmental measurements</td><td>Inputs to the decision making process include:
• Proposed development plans and land use;
• Aerial photographs, historical Land Title records, SafeWork NSW records, and Council requirements;
• National and NSW EPA guidelines endorsed under the NSW Contaminated Land Management Act 1997;
• Soil and groundwater samples and observations obtained from an intrusive investigation in locations, and to depths deemed appropriate for investigative purposes (or prior auger refusal);
• Investigation sampling to verify the presence of onsite contamination and to evaluate the potential risks to sensitive receptors; and
• Laboratory analysis of selected soil and groundwater samples will comprise COPC presented in Section 4.2.
At the end of the assessment, a decision must be made regarding whether the environmental conditions are suitable for the proposed redevelopment, or if additional investigations are required to confirm site suitability, or remedial works to make the site suitable for the proposed use.</td><td>-</td></tr>
<tr><td>4. Define the Boundaries of the Study
Specify the spatial and temporal aspects of the environmental media that the data must represent to support decision</td><td>Lateral – The cadastral boundaries of the site;
Vertical – From the existing ground level to at least the base of the proposed bulk excavation level at approximately 12m BGL and locally deeper required for footing and/or trench excavations for the slab, and to the depth of water-bearing zones; and
Temporal – The results will be valid on the day samples are collected and will remain valid as long as no changes occur in regards to site use, and contamination (if present) does not migrate onto the site from off-site sources.</td><td>-</td></tr>
</table>

DQO Steps	Details	Comments (changes during investigation)
5. Develop the Analytic Approach (Develop a decision rule) To define the parameter of interest, specify the action level, and integrate previous DQO outputs into a single statement that describes a logical basis for choosing from alternative actions	Laboratory test results will be accepted if: • All contracted laboratories are accredited by NATA for the analyses undertaken; • All laboratory analytical data is within pre-determined data acceptance criteria, in accordance with laboratory quality assurance and quality control (QA/QC) policies and DQOs; • QA/QC results demonstrate acceptable reliability and representativeness of the data set; and • Laboratory practical quantitation limits (PQL) are below the adopted acceptance/assessment criteria for the tested chemical of concern. The decision rules for the investigation were: • If the concentrations of contaminants in the soil data exceed the relevant health-based investigation criteria, the health screening criteria and ecological criteria where accessible soils would be used for the intended land use; then assess the need to further investigate the extent of impacts onsite. • Decision criteria for QA/QC measures are defined by the Data Quality Indicators (DQI) in **Table 6-2**.	-
6. Specify Performance or Acceptance Criteria (Specify limits on decision errors) Specify the decision-maker's acceptable limits on decision errors, which are used to establish performance goals for limiting uncertainties in the data	Specific limits for this project are to be in accordance with the National and NSW EPA guidance, and appropriate indicators of data quality and standard procedures for field sampling and handling. This should include the following points to quantify tolerable limits: • The null hypothesis for the investigation is that the 95% Upper Confidence Limits (UCL) of the mean for contaminants of concern exceed relevant commercial / industrial land use criteria across the site. • The acceptance of the site will be based on the probability that: – The 95% UCL of the mean of the data will satisfy the given site criteria. Therefore, a limit on the decision error will be 5% that a conclusive statement may be incorrect; – The standard deviation of the results is less than 50% of the relevant remediation acceptance criterion; and – No single results exceed the remediation acceptance criteria by 250% or more. • Soil concentrations for chemicals of concern that are below investigation criteria made or approved by the NSW EPA will be treated as acceptable and indicative of suitability for the proposed land use(s). • If contaminant concentrations in soil and/or groundwater exceed the adopted criteria, further investigation will be will be considered prudent. If no contamination is detected in soil and/or groundwater, no further action is required.	-

DQO Steps	Details	Comments (changes during investigation)
7. Develop the Detailed Plan for Obtaining Data (Optimise the design for obtaining data) Identify the most resource-effective sampling and analysis design for general data that are expected to satisfy the DQOs	In order to identify the most resource-effective sampling and analysis design for general data that are expected to satisfy the DQOs: • Nine (9) sampling locations were proposed for the site using a systematic and targeted sampling pattern across accessible areas of the site. – Three groundwater wells were proposed to be installed at the site. • An upper soil profile sample will be collected at each borehole location and tested for chemicals of concern, to assess the conditions of the fill layer, and impacts from commercial and industrial activities at ground level. Further sampling would also be carried out at deeper soil layers. Samples will be selected based on field observations (including visual and olfactory evidence, as well as soil vapour screening in headspace samples) whilst giving consideration to characterise the subsurface soil stratigraphy. • Written instructions will be issued to guide field personnel in the required fieldwork activities; • Field screening for potential VOC contamination was not carried out with a portable Photo-Ionisation Detector (PID); • Representative soil samples will be collected from the site and analysed to allow characterisation of soils; and • Review of the results will be undertaken to determine if further excavation and additional sampling is warranted. Additional investigations would be considered to be warranted where soil concentrations are found to exceed remediation criteria endorsed by the NSW EPA, relevant to the proposed land use(s).	-

5.2 DATA QUALITY INDICATORS

To ensure that the investigation data collected was of an acceptable quality, the investigation data set was assessed against the data quality indicators (DQI) outlined in **Table 5-2**, which related to both field and laboratory-based procedures. The assessment of data quality is discussed in **Section 7**.

Table 5-2 Data Quality Indicators

Data Quality Objective	Data Quality Indicator	Acceptable Range
Accuracy	Field – Trip blank (laboratory prepared) Laboratory – Laboratory control spike and matrix spike	< laboratory limit of reporting (LOR) Prescribed by the laboratories
Precision	Field – Blind replicate and spilt duplicate Laboratory – Laboratory duplicate and matrix spike duplicate	< 30 % relative percentage difference (RPD [%]) Prescribed by the laboratories
Representativeness	Field – Trip blank (laboratory prepared) Laboratory – Method blank	< laboratory limit of reporting (LOR) Prescribed by the laboratories
Completeness	Completion (%)	-

6. ASSESSMENT METHODOLOGY

6.1 SAMPLING RATIONALE

With reference to the preliminary CSM described in **Section 5**, soil and groundwater investigation works were planned in accordance with the following rationale:

- Sampling fill and natural soils from nine test bore locations located systematically across the site using a grid-based sampling pattern to characterise in-situ soils;
- Installation of three (3) groundwater monitoring wells and sampling groundwater during a single groundwater monitoring event (GME) at the monitoring well to assess for potential groundwater impacts; and
- Laboratory analysis of representative soil and groundwater samples for the identified contaminants of concern.

6.2 INVESTIGATION CONSTRAINTS

Natural soil sampling at BH4 and BH7 during the investigation could not be achieved due to buried impenetrable materials (i.e. concrete slab and bricks), which caused auger refusal. Installation of groundwater monitoring wells at BH1M, BH2M and BH8M during the investigation could not be achieved to target depth (12 m) due to hard bedrock, which caused auger refusal.

6.3 ASSESSMENT CRITERIA

The assessment criteria proposed for this project are outlined in **Table 6-1**. These were selected from available published guidelines that are endorsed by national or state regulatory authorities, with due consideration of the exposure scenario that is expected for various parts of the site, the likely exposure pathways and the identified potential receptors.

Table 6-1 Adopted Investigation Levels for Soil and Groundwater

Environmental Media	Adopted Guidelines	Rationale
Soil	NEPM, 2013 Soil HILs, , HSLs, & Management Limits for TPHs	**Soil Health-based Investigation Levels (HILs)** Basement and building footprint: NEPM (2013) HIL-B for residential settings with limited soils access. **Soil Health-based Screening Levels (HSLs)** Basement and building footprint: NEPM (2013) HSL-A&B for low-high density residential. - *EI note that HSL-D for vapour intrusion in accordance with NEPM (2013) Table 1A(3) Note (1) can used for assessment purposes were basements underlie ground floor or first floor residential dwellings.* Asbestos HSLs WADOH (2009) assessment criteria, as presented in NEPM (2013), were not adopted during this investigation. Presence / absence of asbestos (not-detected) were utilised for preliminary screening purposes. **Management Limits for Petroleum Hydrocarbons** Should the HSLs be exceeded for petroleum hydrocarbons, soil samples from BH2, BH3 & BH5 would also assessed against the NEPM 2013 *Management Limits* for the TRH fractions F1 – F4 to assess propensity for phase-separated hydrocarbons (PSH), fire and explosive hazards & adverse effects on buried infrastructure.
Groundwater	NEPM, 2013 GILs for Marine Waters ANZECC 2000 Trigger Values	**Groundwater Investigation Levels (GILs) for Marine Water** NEPM 2013 provides GILs for marine water aquatic ecosystems, which are based on the ANZECC & ARMCANZ 2000 Trigger Values (TVs) for the 95% level of protection of aquatic ecosystems; however, the 99% TVs were applied for the bio-accumulative metals *cadmium* and *mercury*. The marine criteria were considered relevant as the closest, potential surface water receptor was Georges River approximately 440 m south-east of the site. Due to the ANZECC (2000) criteria for petroleum hydrocarbons being below the laboratory limit of reporting, the PQL for each TRH fraction was adopted as the GIL for aquatic ecosystems, as per the guidance provided in DEC (2007) *Guidelines for the Assessment and Management of Groundwater Contamination*.
	NEPM, 2013 Groundwater HSLs for Vapour Intrusion	**Health-based Screening Levels (HSLs)** The NEPM 2013 groundwater HSLs for vapour intrusion were used to assess for potential human health impacts from residual vapours resulting from petroleum, BTEX and naphthalene impacts. The *HSL A* and *HSL B* thresholds for low and medium-density residential sites were applied for groundwater as a conservative approach.
	NEPM, 2013 GILs for Drinking purposes	**Drinking Water GILs** The NEPM (2013) GILs for drinking water quality were adopted relating to direct contact/ingestion of groundwater with consideration to construction workers during development, basement users and any unregistered groundwater wells. These were based on the Australian Drinking Water Guidelines (Ref. NHMRC, 2011).

For the purposes of this investigation, the adopted soil assessment criteria are referred to as the Soil Investigation Levels (SILs) and the adopted groundwater assessment criteria are referred to as the Groundwater Investigation Levels (GILs). SILs and GILs are presented alongside the analytical results in the corresponding summary tables, which are discussed in **Section 8**.

6.4 SOIL INVESTIGATION

The soil investigation works conducted at the site are described in **Table 6-2**. Test bore locations are illustrated in **Figure 2**.

Table 6-2 Summary of Soil Investigation Methodology

Activity/Item	Details
Fieldwork	The site soil intrusive investigations were conducted on 20 April 2018 (BH1M to BH9).
Drilling Method & Investigation Depth	Test bores were drilled using a Hanjin solid flight auger drill rig. Borehole and monitoring well construction is presented in the detailed logs attached in **Appendix F**. The final borehole depths ranged between 0.3m to 9.8m BGL. Natural soil sampling at BH4 and BH7 during the investigation could not be achieved due to buried impenetrable materials (i.e. concrete slab and bricks), which caused auger refusal.
Soil Logging	Drilled soils were classified in the field with respect to lithological characteristics and evaluated on a qualitative basis for odour and visual signs of contamination. Soil classifications and descriptions were based on Unified Soil Classification System (USCS) and Australian Standard (AS) 4482.1-2005. Bore logs are presented in **Appendix F**.
Field Observations (including visual and olfactory signs of potential contamination)	• A summary of field observations is provided, as follows: • Angular to sub-angular gravels were reported within the fill material; • No unusual odours were reported within the soil samples collected from across the site; • Fibre cement sheet fragments were not observed in drilling cuttings; and • Evidence of ash or slag materials was not observed in drilling cuttings for boreholes.
Soil Sampling	• Soil samples were collected using a dry grab method (unused, dedicated nitrile gloves) & placed into laboratory-supplied, acid-washed, solvent-rinsed glass jars. • Blind field duplicates were separated from the primary samples and placed into glass jars. • A small amount of duplicate was separated from all fill samples and placed into a zip-lock bag for asbestos analysis.
Decontamination Procedures	*Drilling Equipment* - The drilling rods were decontaminated between sampling locations with potable water until the augers were free of all residual materials. *Sampling Equipment* – Sampling tools were decontaminated between sampling locations with a solution of potable water and Decon 90 followed by rinsing with potable water.
Sample Preservation	Samples were stored in a refrigerated (ice-filled) chest, whilst on-site and in transit to the laboratory. All samples were submitted and analysed within the required holding period, as documented in laboratory reports discussed in a later section.
Management of Soil Cuttings	Soil cuttings were used as backfill for completed boreholes.

Activity/Item	Details
Quality Control & Laboratory Analysis	A number of soil samples were submitted for analysis of previously-identified COPC by SGS Laboratories (SGS). QA/QC testing comprised intra-laboratory duplicates ('field duplicates') tested blind by SGS and an inter-laboratory field duplicate tested blind by Envirolab Services (Envirolab). All samples were transported under strict Chain-of-Custody (COC) conditions and COC certificates and laboratory sample receipt documentation were provided to EI for confirmation purposes, as discussed in **Section 9**.
Soil Vapour Screening	Field screening for potential VOCs collected in soil headspace samples was conducted using a PID fitted with a 10.6 eV lamp.

6.5 GROUNDWATER INVESTIGATION

The groundwater investigation works conducted at the site are described in **Table 6-3**. Monitoring well locations are illustrated in **Figure 2**.

Table 6-3 Summary of Groundwater Investigation Methodology

Activity/Item	Details
Fieldwork	Groundwater monitoring wells were installed and developed on the 20 April 2018. Water level gauging, well purging, field testing and groundwater sampling was conducted on 2 May 2018.
Well Construction	Three on-site down-gradient test bores (BH1M BH2M and BH8M) were extended to the maximum depth of 9.8 mBGL and converted to groundwater monitoring well. Installation of groundwater monitoring wells at BH1M, BH2M and BH8M during the investigation could not be achieved to target depth (12 m) due to hard bedrock, which caused auger refusal. The borehole for the monitoring well was drilled using a Hanjin solid flight auger drill rig. Well construction details are tabulated in **Table 8-2** and documented in the bore logs presented in **Appendix F**. The well installed by EI screened the water table inflow recorded during drilling within the residual soil profile. Well construction was in general accordance with the standards described in NUDLC, 2012 and involved the following: • 50 mm, Class 18 uPVC, threaded, machine-slotted screen and casing, with slotted intervals in shallow wells set to screen to at least 500 mm above the standing water level to allow sampling of phase-separated hydrocarbon product, if present; • Base and top of each well was sealed with a uPVC cap; • Annular, graded sand filter was used to approximately 300mm above top of screen interval; • granular bentonite was applied above annular filter to seal the screened interval; • Drill cuttings were used to backfill the bore annulus to just below ground level; and • Surface completion comprised a steel road box cover set in neat cement and finished flush with the concrete slab level.
Well Development	Well development was conducted for each well directly following installation. This involved agitation within the full length of the water column using a dedicated, HDPE, disposable bailer, followed by removal of water and accumulated sediment. Well development was considered successful upon purging three times the well volume or until dry.
Well Survey (Elevation and location)	Well elevation has been estimated from the survey plan provided by the Client. (Ref. Project surveyors, 2018. Job Ref. D4118, dated 26 March 2018). Construction of test boreholes at 9 locations distributed in a triangular grid pattern across accessible areas of the site.

Activity/Item	Details
Well Gauging	Monitoring wells BH1M, BH2M, and BH8M was gauged for standing water level (SWL, depth to groundwater) prior to well purging at the commencement of the GME on 2 May 2018. Measured SWL is shown in **Table 8-2**. The gauging was conducted with a water level meter probe. A transparent HDPE bailer was used to visually assess for the presence PSH prior to the commencement of well purging.
Well Purging & Field Testing	The groundwater monitoring well was purged and sampled using low-flow/minimal draw-down sampling method with a MicroPurge kit (MP15) and a portable MicroPurge pump following well gauging. The MicroPurge system incorporates a low density poly-ethylene (LDPE) pump bladder, and a Teflon-lined LDPE sample delivery tube. The system used for this investigation employed pressurised carbon dioxide gas to regulate groundwater flow. Pump pressure and pumping cycles were adjusted accordingly to regulate extraction flow rate, and to avoid causing excessive drawdown of water level during the sampling process. Field measurement of water quality parameters was conducted continuously on purged groundwater with a water quality meter (Hanna Multi Parameter 9829) positioned within an open flow-through cell. Groundwater parameters tested in the field were Dissolved Oxygen (DO), Electrical Conductivity (EC), Redox, Temperature and pH. The measured parameters were recorded onto a field data sheet (**Appendix G**), along with the purged water volume at the time of measurement. Groundwater sampling was performed when three consecutive readings of groundwater parameter indicated stabilisation; as per the specified ranges detailed below: • Electrical Conductivity: ± 3% of the read value; • Redox: ± 20 mV; • DO: ± 20% of the read value; • pH: ± 0.2 pH unit; and • Temperature: ± 0.2°C Total water volume purged and stabilised groundwater parameters are summarised in **Table 9-3.**
Decontamination Procedure	• The water level probe, water quality kit probes, MicroPurge and HDPE bailers were washed in a solution of potable water and Decon 90 and then rinsed with potable water. • All sample containers were supplied by the laboratory for the particular project and only opened once immediately prior to sampling. • While ice was used to keep the samples cool, all melt water was continuously drained from the Esky to prevent cross-contamination of samples.
Sample Preservation	The following sample containers supplied by the laboratory were used to store groundwater samples: • One, amber glass, acid-washed and solvent-rinsed bottle; • Two, 40 ml amber glass vials, pre-preserved with dilute hydrochloric acid, Teflon-sealed; and • One, 250 mL, HDPE bottle, pre-preserved with dilute nitric acid (1 mL). Samples collected for heavy metal analysis were field-filtered using 0.45 µm pore-size filters. All containers were filled with sample to the brim then capped and stored in ice-filled chests, until completion of the fieldwork and during sample transit to the laboratory.
Quality Control & Laboratory Analysis	All groundwater samples were submitted for analysis of previously-identified chemicals of concern by SGS Laboratories (SGS). QA/QC testing comprised testing of rinsate blank and trip blank samples. All samples were transported under strict Chain-of-Custody (COC) conditions. COC certificates and laboratory sample receipt documentation were provided to EI for confirmation purposes.
Sample Transport	After sampling, refrigerated sample chests were transported to SGS Australia Pty Ltd using strict Chain-of-Custody (COC) procedures. Inter-laboratory duplicate (ILD) samples

Activity/Item	Details
	were forwarded to Envirolab Services Pty Ltd (Envirolab) for QA/QC analysis. A Sample Receipt Advice (SRA) was provided by each laboratory to document sample condition upon receipt. Copies of SRA and COC certificates are presented in **Appendix H**.

7. DATA QUALITY ASSESSMENT

The assessment of data quality is defined as the scientific and statistical evaluation of environmental data to determine if the data meets the objectives for the project (USEPA 2006). Data quality assessment included an evaluation of the compliance of the field sampling, field and laboratory duplicates and laboratory analytical procedures and an assessment of the accuracy and precision of these data from the laboratory quality control measurements. The findings of the data quality assessment in relation to the current investigation at the site are discussed in detail in **Appendix J**.

The QC measures generated from the field sampling and laboratory analytical program are summarised in **Table 7-1**.

Table 7-1 Quality Control Process

Data Quality	Control	Conformance [Yes, Part, No]	Report Sections
Preliminaries	Data Quality Objectives established	Yes	See **Section 6**.
Field work	Suitable documentation of fieldwork observations including borehole logs, sample register, field notes, calibration forms	Yes	See **Appendix F** and **Appendix G**.
Sampling Plan	Use of relevant and appropriate sampling plan (density, type, and location)	Yes	See sample rationale
	All media sampled and duplicates collected	Yes	Soil vapour not required.
	Use of approved and appropriate sampling methods (soil, groundwater, air quality)	Yes	See **Section 6**
	Selection of soil samples according to field PID readings (where VOCs are present)	Yes	See **Section 6** and **Appendix F**
	Preservation and storage of samples upon collection and during transport to the laboratory	Yes	See **Section 6**
	Appropriate Rinsate, Field and Trip Blanks taken	Yes	See **Appendix J**
	Completed field and analytical laboratory sample COC procedures and documentation	Yes	See **Appendix H** and **Appendix I**
Laboratory	Sample holding times within acceptable limits	Yes	See **Appendix H** and **Appendix J**
	Use of appropriate analytical procedures and NATA-accredited laboratories	Yes	See **Appendix K**
	LOR/PQL low enough to meet adopted criteria	Yes	See **Appendix K**
	Laboratory blanks	Yes	See **Appendix J** and **Appendix K**

Data Quality	Control	Conformance [Yes, Part, No]	Report Sections
	Laboratory duplicates	Yes	See **Appendix J** and **Appendix K**
	Matrix spike/matrix spike duplicates (MS/MSDs)	Yes	See **Appendix J** and **Appendix K**
	Surrogates (or System Monitoring Compounds)	Yes	See **Appendix J** and **Appendix K**
	Analytical results for replicated samples, including field and laboratory duplicates and inter-laboratory duplicates, expressed as Relative Percentage Difference (RPD)	Yes	See **Appendix J** and **Appendix K**
	Checking for the occurrence of apparently unusual or anomalous results, e.g. laboratory results that appear to be inconsistent with field observations or measurements	Yes	See **Appendix J** and **Appendix K**
Reporting	Report reviewed by senior staff to assess project meets desired quality, EPA guidelines and project outcomes.	Yes	See Report Distribution page at front of report.

7.1 Quality Overview

On the basis of the field and analytical data validation procedure employed, the overall quality of the analytical data produced for the site was considered to be of an acceptable standard for interpretive use and preparation of a conceptual site model (CSM).

8. RESULTS

8.1 SOIL INVESTIGATION RESULTS

8.1.1 Site Geology and Subsurface Conditions

The general site geology encountered during the drilling of the soil investigation boreholes, installation of monitoring wells may be described as a layer of anthropogenic filling overlying residual soils and weathered shale bedrock. The geological information obtained during the investigation is summarised in **Table 8-1** and borehole logs from these works are presented in **Appendix F**.

Table 8-1 Generalised Subsurface Profile

Layer	Description	Minimum & maximum depth of layer (mBGL)
Concrete	Pavement	0.0- 0.15
Fill	Sandy CLAY; medium t high plasticity, with sub angular to angular gravels, no odour.	0.15–0.7
Residual Soil	Silty CLAY; medium to high plasticity, grey mottled red, no odour.	0.7-8.0
Bedrock	SHALE; extremely weathered, light brown.	8.0-9.8+

Note:
+ Denotes the material was detected at the termination depths.

8.1.2 Field Observations and PID results

Soil samples were obtained from the test bores at various depths ranging between 0.2 mBGL to 5.5 mBGL. All examined soil samples were evaluated on a qualitative basis for odour and visual signs of contamination (e.g. hydrocarbon odours, oil staining, petrochemical filming, asbestos fragments, ash, and charcoal) and the following observations were noted:

- Angular to sub-angular gravels were reported within the fill material;
- No unusual odours were reported within the soil samples collected from across the site;
- Fibre cement sheet fragments were not observed in any drilling cuttings; and
- No signs of ash or slag materials were detected in any of the drilled boreholes.
- PID results are shown in the borehole logs (**Appendix G**). PID value at sample BH6_0.6-0.7 reported was >10 ppm.

8.2 GROUNDWATER INVESTIGATION RESULTS

8.2.1 Monitoring Well Construction

Three (3) groundwater monitoring well was installed to evaluate the condition of the groundwater at the site. The groundwater monitoring wells were installed to screen the groundwater within the natural silty clay. Well construction details for the installed groundwater monitoring well are summarised in **Table 8-2** and presented on the respective bore log attached in **Appendix F**.

8.2.2 Field Observations and Water Test Results

A single GME was conducted on the well on 2 May 2018. On this date, standing water levels (SWLs) were measured prior to well purging, and recorded with well purge volumes and field-based water test results. A summary of the recorded field data is presented in **Table 8-2.**

Table 8-2 Monitoring Well Construction Details (Installed 22/02/18)

Well ID	Stick-up (m)	Ground Level RL(mAHD)	Bore Depth (mBGL)	Screen Interval (mBGL)	Initial well volume / Volume developed (L)	Lithology Screened
BH1M	-0.09	Approx. 12.97 m	5.7	4.3-5.73	20L	Silty CLAY
BH2M	-0.10	Approx. 12.85 m	9.8	7.8-9.87	20L	Silty CLAY
BH8M	-0.10	Approx. 13.05 m	8	6.0-8.0	20L	Silty CLAY

Notes:
mAHD - metres Australian Height Datum
L - Litres
Ground level RLs have been approximated from the survey plan (Brunskill McClenahan & Associates Pty Ltd, 2013. Project Ref. 9284 – 3/11, dated 04 September 2013)

Table 8-3 Groundwater Field Data

Well ID	Purge Volume (L)	Depth of pump inlet	Initial SWL (mBTOC)	Initial SWL (mAHD)	DO (mg/L)	Field pH	Field EC (µS/cm)	Temp (°C)	Redox (mV)	Comments
BH1M	2.0	4.5m BGL	3.25	9.63	0.69	7.08	13250	24.88	137.6	Medium-high turbidity, brown and yellow, no odour.
BH2M	2.0	8m BGL	2.99	9.76	0.21	7.88	11340	24.2	105.2	Low turbidity, pale yellow, no odour.
BH8M	2.0	6m BGL	3.23	9.72	0.43	7.82	13140	25.52	90.9	Low-medium turbidity, brown and grey, no odour.

Notes:
GME – Groundwater monitoring event.
SWL – Standing Water Levels.
L – litres (referring to volume of water purged from the well prior to groundwater sample collection).
EC – groundwater electrical conductivity as measured onsite using portable EC meter.
µS/cm – micro Siemens per centimetre (EC units).
mAHD – metres Australian Height Datum.

DO – Dissolved Oxygen in units of milligrams per litre (mg/L)
All groundwater parameters (pH, EC and DO) were tested on site.
Field Redox (mV) readings adjusted to Standard Hydrogen Electrode (SHE) by adding field electrode potential (205mV).

With reference to **Table 9-3**, the field pH data indicated that the groundwater was slightly alkaline, of brackish salinity, while redox conditions were oxidising.

8.3 Laboratory Analytical Results

8.3.1 Soil Analytical Results

A summary of laboratory results showing test sample quantities, minimum/maximum analyte concentrations and samples found to exceed the SILs, is presented in **Table 8-4**. More detailed tabulations of results showing the tested concentrations for individual samples alongside the adopted soil criteria are presented in **Table T1** at the end of this report. Completed documentation used to track soil sample movements and laboratory receipt (i.e. COC and SRA forms) are copied in **Appendix H** and all laboratory analytical reports for tested soil samples are presented in **Appendix I**.

Table 8-4 Summary of Soil Analytical Results

No. of primary samples	Analyte	Min. Conc. (mg/kg)	Max. Conc. (mg/kg)	Sample locations exceeding investigation levels
Hydrocarbons				
13	TPH C6–C9	<20	<20	None
13	TPH C10-C36	<110	160	None
13	TRH F1	<25	<25	None
13	TRH F2	<25	32	None
13	TRH F3	<90	120	None
13	TRH F4	<120	<120	None
13	Benzene	<0.1	<0.1	None
13	Toluene	<0.1	<0.1	None
13	Ethyl benzene	<0.1	<0.1	None
13	Total xylenes	<0.3	<0.3	None
13	Naphthalene	<0.1	<0.1	None
13	Benzo(a)pyrene	<0.1	0.5	None
13	Carcinogenic PAHs	<0.3	0.7	None
13	Total PAH	<0.8	4.5	None
OCPs				
9	Heptachlor epoxide	<0.1	<0.1	None
9	Chlordane	<0.1	<0.1	None
9	Total OCPs	<1	<1	None
9	Heptachlor	<0.1	<0.1	None

Heavy Metal				
13	Arsenic	4	8	None
13	Cadmium	<0.3	0.5	None
13	Chromium (Total)	9	27	None
13	Copper	6.3	32	None
13	Lead	21	510	None
13	Mercury	<0.05	0.75	None
13	Nickel	1.6	35	None
13	Zinc	8	350	None
PCBs				
9	Total PCBs	<1	<1	None
OPPs				
9	Total OPPs	<1.7	<1.7	None
Asbestos				
9	Asbestos	No asbestos detected	Asbestos detected	BH2M 0.2-0.3

8.3.2 Groundwater Analytical Results

A summary of laboratory results showing test sample quantities, maximum analyte concentrations, and samples found to exceed the GILs, are presented in **Table 8-5**. More detailed tabulations of results showing the tested concentrations for individual samples alongside the adopted groundwater criteria are presented in **Table T2** at the end of this report. Completed documentation used to track groundwater sample movements and laboratory receipt (i.e. COC and SRA forms) are copied in **Appendix H** and all laboratory analytical reports for tested groundwater samples are presented in **Appendix I**.

Table 8-5 Summary of Groundwater Analytical Results

No. of primary samples	Analyte	Max. Conc. (µg/L)	Sample locations exceeding investigation levels
Heavy Metal			
3	Arsenic	3	None
3	Cadmium	0.4	None
3	Chromium (Total)	110	BH2M (110 µg/L); BH8M (27 µg/L) > ANZECC / ARMCANZ (2000) Marine '27 µg/L' (Cr III) / '4.4 µg/L' (Cr IV)
3	Copper	52	BH1M (36 µg/L); BH2M (52 µg/L); BH8M (45 µg/L) > ANZECC / ARMCANZ (2000) Marine '1.3 µg/L)
3	Lead	4	None
3	Mercury	<PQL	None
3	Nickel	15	BH1M (15 µg/L); BH8M (11 µg/L) > ANZECC / ARMCANZ (2000) Marine '7 µg/L)
3	Zinc	180	BH1M (86 µg/L); BH2M (59 µg/L); BH8M (180 µg/L) > ANZECC / ARMCANZ (2000) Marine '15 µg/L')
Hydrocarbons			
3	TRH F1	<PQL	None
3	TRH F2	<PQL	None
3	TRH F3	<PQL	None
3	TRH F4	<PQL	None
3	Benzene	<PQL	None
3	Toluene	<PQL	None
3	Ethylbenzene	0.9	None
3	Total xylenes	<PQL	None
3	Benzo(a)pyrene	<PQL	None
3	Naphthalene	<PQL	None
3	Total PAHs	<PQL	None
Phenols			
3	Total Phenolics	<PQL	None
VOCs			
3	Total	<PQL	None

9. SITE CHARACTERISATION

9.1 REVIEW OF CONCEPTUAL SITE MODEL

On the basis of investigation findings the preliminary CSM discussed in **Section 4** was considered to appropriately identify contamination sources, migration mechanisms, as well as potential onsite and offsite receptors.

Previously known data gaps, as outlined in **Section 4.4** have largely been addressed. However, the following remaining data gaps will need to be addressed in subsequent investigation works:

- Potential presence of hazardous building materials used in construction of site structures; and
- Areas of the site which were inaccessible for soil sampling due to existing buildings / infrastructure.

9.2 SOIL CHARACTERISATION

Concentrations of heavy metals, hydrocarbons, OCPs, OPPs, and PCBs were found to be below adopted NEPM (2013) HIL-B and HSL-A & B criteria.

Asbestos was detected within fill sample BH2M 0.2-0.3. As the proposed development will require excavation of a four level basement, fill soils will be removed from the site and thus removing human health risks for future occupiers of the site.

9.3 GROUNDWATER

Groundwater concentrations were found to be below the adopted human health and ecologically-based investigation criteria (**Section 7.3**), with the exception of Chromium, copper, nickel and zinc.

Based on EI's experience, heavy metals concentration exceeding water quality criteria are ubiquitous in groundwater systems in long-standing urban/industrial environments such as Liverpool. Whether these results are treated as exceedances of criteria, or representative of urban background groundwater conditions, the identified groundwater concentrations are not considered to represent a cause for environmental concern.

10. CONCLUSIONS

The property located at 26 Elizabeth Street, Liverpool NSW was the subject of a Detailed Site Investigation (DSI) that was conducted in order to assess the nature and degree of on-site contamination associated with current and former uses of the property. Based on the findings of this assessment it was concluded that:

Desktop Study

- The site is located the main business district of Liverpool and is situated within the Local Government Area of Liverpool City Council. The land parcel covers a total area of approximately 3,144 m^2;
- Site land title records indicated that the site had be owned by Peter Warren (Properties) Pty. Limited (motor trader) since 1967 to 2015.
- Historic aerial photography showed that from the 1930s the surrounding land use consisted of predominantly residential developments, with the site bound on the north by Elizabeth Street. From the 1960s increased commercialisation along Elizabeth Street occurred until the 1990s, from which point the surrounding area remained relatively unchanged until the present day.
- Site history records held by Liverpool City Council were not available at the time of this assessment.
- SafeWork searches were completed for the site located at 26 Elizabeth Street, Liverpool NSW and no records pertaining to the site were held.
- EPA – Notified / Listed / POEO:

  There are no sites with any regulatory notices, listed as contaminated or on the POEO Public Register issued by the EPA within 500 m of the site.

Intrusive Investigations

- The sub-surface layers comprised anthropogenic filling overlying natural clays;
- Groundwater inflow was encountered at 4.8 mBGL in BH1M, 8.3 mBGL in BH2M, 6.1 mBGL in BH8M. Standing Water Levels (SWLs) collected during the GME were reported at 3.25 mBGL, 2.99 mBGL, 3.23 mBGL;
- Groundwater flow direction was indicated to the south-west based on monitoring of the installed wells;
- Results of soil samples collected from soil test boreholes indicated the following:
  - Concentrations of asbestos were detected within fill sample BH2M 0.2-0.3;
- Results of Groundwater samples collected from soil test boreholes indicated the following:
  - Chromium, copper, nickel and zinc exceeded the ANZECC / ARMCANZ (2000) Marine Water criteria;

- Previously known data gaps, as outlined in the CSM (**Section 4)**, have largely been addressed; however, the following data gaps remain and require closure by additional investigation:
  - Presence of hazardous building materials used in construction of site structures;
  - Investigation of the concrete patched area at the rear portion of the service centre; and
  - Soil sampling areas which were inaccessible due to existing buildings / infrastructure.

Conclusions

Based on the findings from this DSI conducted in accordance with the investigation scope agreed with the Client, and with consideration of the Statement of Limitations (**Section 12**), EI conclude localised soil contamination was observed and will require remediation. A number of data gaps exist that will require further investigation (post-demolition of existing structures to enable access).

Based on EI's experience, heavy metals concentration exceeding water quality criteria are ubiquitous in groundwater systems in long-standing urban/industrial environments such as Liverpool. Whether these results are treated as exceedances of criteria, or representative of urban background groundwater conditions, the identified groundwater concentrations are not considered to represent a cause for environmental concern.

In view of the proposed development scope, and currently available information, EI consider that the contamination identified can be remediated to render the site suitable for the proposed land use, provided recommendations detailed in **Section 11** are implemented.

EI note that the site contamination issues can be managed through the development application process in accordance with the *State Environmental Planning Policy 55 (SEPP 55) – Remediation of Land*, with the requirements for remediation and validation incorporated into conditions of development consent.

11. RECOMMENDATIONS

Based on the findings of this DSI, the following recommendations will be required to be implemented before the site can be confirmed as suitable for the proposed development:

- Preparation of a remedial action plan (RAP) that outlines:

  i. Supplementary investigations:

     a. Further soil investigation to assess inaccessible soils and risk to construction phase and future site users including investigation of the concrete patched area at the rear portion of the service centre.

     b. Further soil sampling to aid in classification of fill for disposal purposes.

  ii. Development of suitable remediation options for identified impacted fill (asbestos) and other excess soil by excavation and disposal or other appropriate method.

  iii. Document waste classification assessment of soil earmarked for any excavation that may occur including piling waste, backfill material from excavations at the site, in accordance with the EPA (2014) Waste Classification Guidelines;

  iv. Document preliminary environmental management consideration and a preliminary validation sampling and quality plan.

- Implementation of the RAP, and

- Preparation of a final site validation report by a suitably qualified environmental consultant, certifying site suitability of soils and groundwater for the proposed land use.

12. STATEMENT OF LIMITATIONS

The findings presented in this report are the result of discrete and specific sampling methodologies used in accordance with best industry practices and standards. Due to the site-specific nature of soil sampling from point locations, it is considered likely that all variations in subsurface conditions across a site cannot be fully defined, no matter how comprehensive the field investigation program.

While normal assessments of data reliability have been made, EI assumes no responsibility or liability for errors in any data obtained from previous assessments conducted on site, regulatory agencies (e.g. Council, EPA), statements from sources outside of EI, or developments resulting from situations outside the scope of works of this project.

Despite all reasonable care and diligence, the ground conditions encountered and concentrations of contaminants measured may not be representative of conditions between the locations sampled and investigated. In addition, site characteristics may change at any time in response to variations in natural conditions, chemical reactions and other events, e.g. groundwater movement and or spillages of contaminating substances. These changes may occur subsequent to EI's investigations and assessment.

EI's assessment is necessarily based upon the result of the site investigation and the restricted program of surface and subsurface sampling, screening and chemical testing which was set out in the proposal. Neither EI, nor any other reputable consultant, can provide unqualified warranties nor does EI assume any liability for site conditions not observed or accessible during the time of the investigations.

This report was prepared for the abovenamed client and no responsibility is accepted for use of any part of this report in any other context or for any other purpose or by other third parties. This report does not purport to provide legal advice.

This report and associated documents remain the property of EI subject to payment of all fees due for this assessment. The report shall not be reproduced except in full and with prior written permission by EI.

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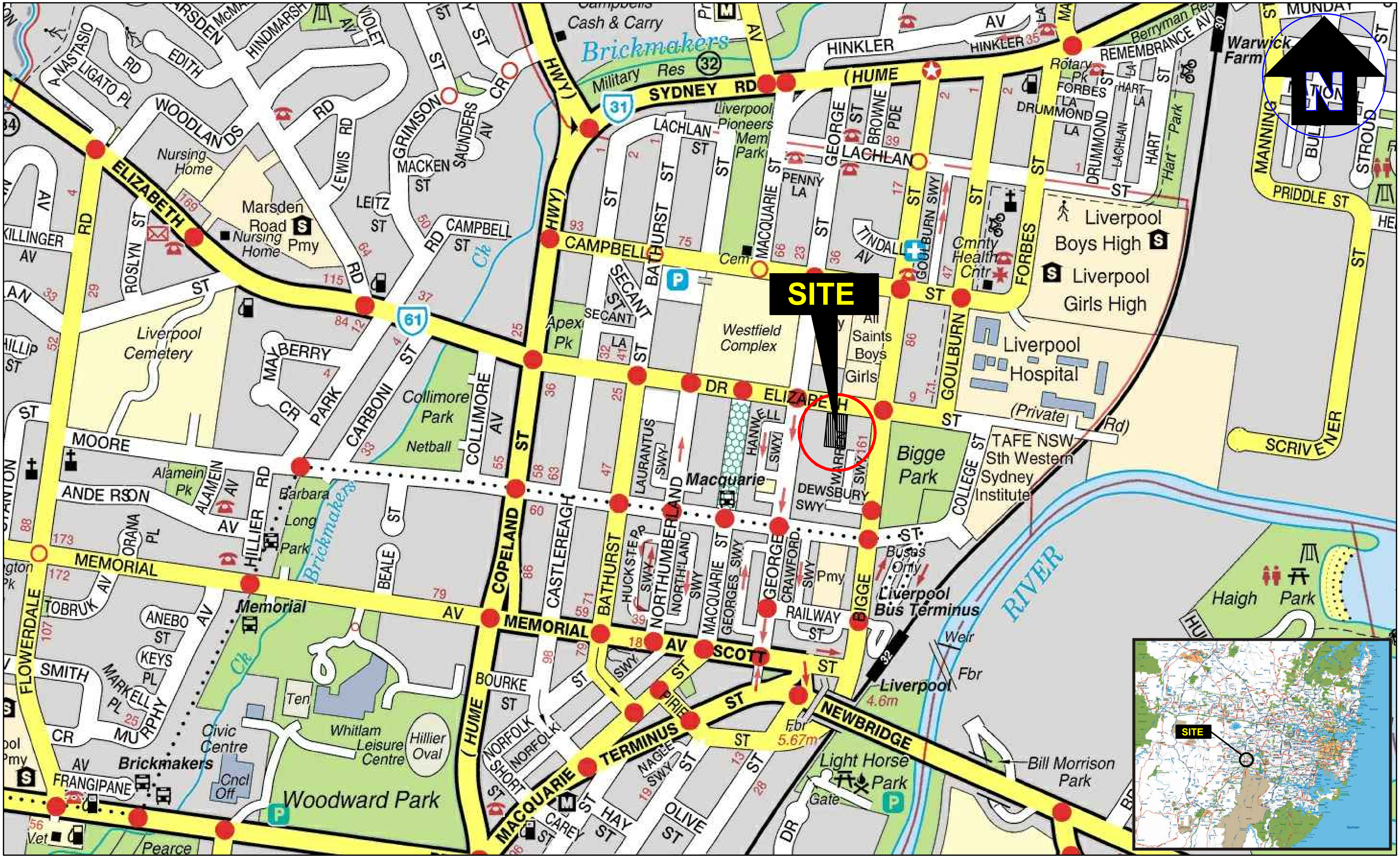
ABBREVIATIONS

ABC	Ambient Background Concentration
ACL	Added Contaminant Limit
ACM	Asbestos-containing materials
AS	Australian Standard
ASS	Acid sulfate soils
ANZECC	Australian and New Zealand Environment Conservation Council
ARMCANZ	Agriculture and Resource Management Council of Australia and New Zealand
B(a)P	Benzo(a)Pyrene (a PAH compound), - B(a)P TEQ Toxicity Equivalent Quotient
BH	Borehole
BTEX	Benzene, Toluene, Ethylbenzene, Xylene
CBD	Central Business District
CLM	Contaminated Land Management
CSM	Conceptual Site Model
COC	Chain of Custody
COPC	Contaminants of Potential Concern
cVOCs	Chlorinated Volatile Organic Compounds (a sub-set of the VOC analysis suite)
DA	Development Application
DBYD	Dial before you dig
DEC	Department of Environment and Conservation, NSW (see OEH)
DECC	Department of Environment and Climate Change, NSW (see OEH)
DECCW	Department of Environment, Climate Change and Water, NSW (see OEH)
DA	Development Application
DO	Dissolved Oxygen
DP	Deposited Plan
DSI	Detailed Site Investigation
EC	Electrical Conductivity
Eh	Redox potential
EIL	Ecological Investigation Level
EPA	Environment Protection Authority
ESL	Ecological Screening Level
F1	TRH C_6 – C_{10} less the sum of BTEX concentrations (Ref. NEPM 2013, Schedule B1)
F2	TRH >C_{10} – C_{16} less the concentration of naphthalene (Ref. NEPM 2013, Schedule B1)
F3	TRH >C_{16} – C_{34} (Ref. NEPM 2013, Schedule B1)
F4	TRH >C_{34} – C_{40} (Ref. NEPM 2013, Schedule B1)
GIL	Groundwater Investigation Level
GME	Groundwater Monitoring Event
GPR	Ground Penetrating Radar
HIL	Health-based Investigation Level
HSL	Health-based Screening Level
km	Kilometres
LNAPL	Light, non-aqueous phase liquid (also referred to as PSH)
LOR	Limit Of Reporting of laboratory instruments (see PQL)
DNAPL	Dense, non-aqueous phase liquid
m	Metres
mAHD	Metres Australian Height Datum
mBGL	Metres Below Ground Level
mg/L	Milligrams per litre

µg/L	Micrograms per litre
mV	Millivolts
MW	Monitoring well
NATA	National Association of Testing Authorities, Australia
NEPC	National Environmental Protection Council
NEPM	National Environmental Protection Measure
NSW	New South Wales
OCP	Organochlorine pesticides
OPP	Organophosphorus pesticides
OEH	Office of Environment and Heritage, NSW (formerly DEC, DECC, DECCW)
PAHs	Polycyclic Aromatic Hydrocarbons
PCB	Polychlorinated Biphenyls
PID	Photo-ionisation Detector
pH	Measure of the acidity or basicity of an aqueous solution
PSH	Phase-separated hydrocarbons (also referred to as LNAPL)
PQL	Practical Quantitation Limit (limit of detection for respective laboratory instruments)
PSI	Preliminary Site Investigation
QA/QC	Quality Assurance / Quality Control
RAP	Remediation Action Plan
SIL	Soil Investigation Level
SRA	Sample receipt advice (document confirming laboratory receipt of samples)
SWL	Standing Water Level
TCLP	Toxicity Characteristics Leaching Procedure
TDS	Total dissolved solids (a measure of water salinity)
TPH	Total Petroleum Hydrocarbons (superseded term equivalent to TRH)
TRH	Total Recoverable Hydrocarbons (non-specific analysis of organic compounds)
UCL	Upper Confidence Limit of the mean
UPSS	Underground Petroleum Storage System
US EPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VOCs	Volatile Organic Compounds (specific organic compounds which are volatile)
VOCs	Volatile Organic Compounds (specific organic compounds which are volatile)
WADOH	Western Australia Department of Health
WHO	World Health Organisation

FIGURES



eiaustralia

Contamination | Remediation | Geotechnical

Suite 6.01, 55 Miller Street, PYRMONT 2009
Ph (02) 9516 0722 Fax (02) 9518 5088

Drawn:	S.L.
Approved:	C.S.
Date:	13-04-18
Scale:	Not To Scale

Binah Development Pty Ltd

Detailed Site Investigation
26 Elizabeth Street, Liverpool NSW

Site Locality Plan

Figure: 1

Project: E23796.E02_Rev1

LEGEND

- Approximate site boundary
- Approximate monitoring well location
- Approximate borehole location
- Approximate basement boundary
- Approximate concrete patched area

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Contamination | Remediation | Geotechnical
Suite 6.01, 55 Miller Street, PYRMONT 2009
Ph (02) 9516 0722 Fax (02) 9518 5088

Drawn:	S.L.
Approved:	C.S.
Date:	26-04-18

Binah Development Pty Ltd
Detailed Site Investigation
26 Elizabeth Street, Liverpool NSW
Sampling Location Plan

Figure: 2

Project: E23796.E02_Rev1

TABLES

Table T1 - Soil Investigation Results

Report No.: E23796.E02

SGS Batch No.	Sample Date	Sample ID	Geological Unit	Heavy Metals (mg/kg)								Total Recoverable Hydrocarbons[1] (mg/kg)						BTEXN (mg/kg)					PAHs (mg/kg)			OCP (mg/kg)				OPP (mg/kg)	PCB (mg/kg)	Asbestos (Presence/Absence)
				Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	C6-C9	C10-C36	F1	F2	F3	F4	Benzene	Toluene	Ethyl benzene	Total Xylenes	Naphthalene	Benzo(a)pyrene	Carcinogenic PAHs	Total PAH	Heptachlor	Heptachlor epoxide	Chlordane	Total OCPs			
Site Validation Criteria																																
HIL B for residential sites with minimal soil access, as per Table 1A(1) of NEPM 2013 Schedule B1				500	150	500	30,000	1,200	120	1,200	60,000	NR						NR					NR	4	400	NR	4	90	400	NR	1	NR
HSL A&B (Sand) Health-based screening level for residential sites, as per NEPM 2013 Schedule B1			0 m to < 1 m	NR								NR		45	NR	NR	NR	0.5	160	55	40	3	NR			NR				NR	NR	NR
			1 m to < 2 m											70				0.5	220	NL	60	NL										
			2m to < 4 m											110				0.5	310	NL	95	NL										
			4 m+											200				0.5	540	NL	170	NL										
HSL A&B (Clay) Health-based screening level for residential sites, as per NEPM 2013 Schedule B1			0 m to < 1 m	NR								NR		50	280	NR	NR	0.7	480	NL	110	5	NR			NR				NR	NR	NR
			1 m to < 2 m											90	NL			1	NL	NL	310	NL										
			2m to < 4 m											150	NL			2	NL	NL	NL	NL										
			4 m+											290	NL			3	NL	NL	NL	NL										
MAX				8	0.5	27	32	510	0.75	35	350	<PQL	160	<PQL	32	120	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0.5	0.7	4.5	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	Yes
Lab PQLs				3	0.3	0.3	0.5	1	0.05	0.5	0.5	20	110	25	25	90	120	0.1	0.1	0.1	0.3	0.1	0.1	0.3	0.8	0.1	0.1	0.1	1.0	1.7	1.0	-
SE178319.001	20/04/2018	BH1M 0.2-0.3	FILL : SANDY CLAY	6	<0.3	10	18	510	0.75	5	58	<20	<110	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	<0.1	<0.1	<0.3	<0.8	<0.1	<0.1	<0.1	<1	<1.7	<1	No
		BH1M 0.6-0.7	NATURAL : SILTY CLAY	5	<0.3	12	6.3	28	<0.05	2.2	8	<20	<110	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	<0.1	<0.1	<0.3	<0.8	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
		BH1M 1.1-1.2	NATURAL : SILTY CLAY	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
		BH1M 2.1-2.2	NATURAL : SILTY CLAY	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
		BH1M 3.0-3.1	NATURAL : SILTY CLAY	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
		BH1M 3.5-3.6	NATURAL : SILTY CLAY	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
		BH1M 4.4-4.5	NATURAL : SILTY CLAY	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
		BH2M 0.2-0.3	FILL : SANDY CLAY	5	<0.3	19	21	130	0.2	15	120	<20	<110	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	<0.1	0.2	0.4	2	<0.1	<0.1	<0.1	<1	<1.7	<1	Yes
		BH2M 0.5-0.6	NATURAL : SILTY CLAY	6	<0.3	9.9	15	50	0.3	2.5	41	<20	<110	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	<0.1	0.1	<0.3	<0.8	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
		BH2M 0.9-1.0	NATURAL : SILTY CLAY	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
		BH2M 1.4-1.5	NATURAL : SILTY CLAY	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
		BH2M 2.4-2.5	NATURAL : SILTY CLAY	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
		BH2M 3.5-3.6	NATURAL : SILTY CLAY	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
		BH2M 4.0-4.1	NATURAL : SILTY CLAY	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
		BH2M 4.5-4.6	NATURAL : SILTY CLAY	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
		BH3 0.2-0.3	FILL : SANDY CLAY	6	<0.3	11	8.5	56	0.07	2.5	50	<20	<110	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	<0.1	<0.1	<0.3	<0.8	<0.1	<0.1	<0.1	<1	<1.7	<1	No
		BH4 0.2-0.3	FILL : SANDY CLAY	4	<0.3	9.1	14	77	0.12	2.4	130	<20	<110	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	<0.1	<0.1	<0.3	<0.8	<0.1	<0.1	<0.1	<1	<1.7	<1	No
		BH5 0.3-0.4	FILL : SANDY CLAY	7	<0.3	19	27	120	0.32	7.3	130	<20	<110	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	<0.1	0.5	0.7	4.5	<0.1	<0.1	<0.1	<1	<1.7	<1	No
		BH6 0.3-0.4	FILL : SANDY CLAY	7	<0.3	14	26	160	0.5	5.3	140	<20	<110	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	<0.1	0.2	0.3	1.4	<0.1	<0.1	<0.1	<1	<1.7	<1	No
		BH6 0.6-0.7	NATURAL : SILTY CLAY	4	<0.3	9	8.3	29	<0.05	1.6	9.7	<20	<110	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	<0.1	<0.1	<0.3	<0.8	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
		BH7 0.2-0.3	FILL : SANDY CLAY	5	0.5	27	26	230	<0.05	35	190	<20	120	<25	<25	120	<120	<0.1	<0.1	<0.1	<0.3	<0.1	<0.1	<0.3	<0.8	<0.1	<0.1	<0.1	<1	<1.7	<1	No
		BH8M 0.5-0.6	FILL : SANDY CLAY	6	0.4	13	28	250	0.18	11	350	<20	160	<25	32	120	<120	<0.1	<0.1	<0.1	<0.3	<0.1	0.4	0.6	4.2	<0.1	<0.1	<0.1	<1	<1.7	<1	N.A.
		BH8M 1.9-2.0	NATURAL : SILTY CLAY	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	No
		BH8M 2.4-2.5	NATURAL : SILTY CLAY	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
		BH9 0.2-0.3	FILL : SANDY CLAY	7	0.3	19	32	160	0.14	4.3	200	<20	150	<25	<25	120	<120	<0.1	<0.1	<0.1	<0.3	<0.1	0.3	0.5	2.6	<0.1	<0.1	<0.1	<1	<1.7	<1	No
		BH9 0.9-1.0	NATURAL : SILTY CLAY	8	<0.3	19	12	21	<0.05	2.9	12	<20	<110	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	<0.1	<0.1	<0.3	<0.8	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.

Notes:

-	Not tested / Not calculated.
(yellow)	Concentration exceeds remdiation criteria.
NR	No reference criteria available in current regulatory tools.
NL	'Not Limiting' If the derived soil vapour limit exceeds the soil concentration at which the pore water phase cannot dissolve any more of the individual chemical, i.e. where the soil vapour is at equilibrium with the pore water, then the soil vapour source cannot exceed a level that would result in the maximum allowable vapour risk for the given scenario, therefore the HSL is not limiting.
PQL	(Laboratory's) Practical Quantitation Limit
1	TRH Fractions
	TRH-F1 = C_6-C_{10} minus the sum of BTEX concentrations
	TRH-F2 = >C_{10} - C_{16} minus the concentration of Naphthalene
	TRH-F3 = >C_{16} - C_{34}
	TRH-F4 = >C_{34} - C_{40}

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Table T2 – Summary of Groundwater Investigation Results **E23796 - Liverpool**

Sample Identification		Date	Heavy Metals								PAHs			BTEX					TRHs				VOCs	Phenolics
			As	Cd	Cr	Cu	Pb	Hg	Ni	Zn	Total PAHs	Benzo(a)pyrene	Naphthalene	Benzene	Toluene	Ethylbenzene	o-xylene	m/p-xylene	F1	F2	F3	F4	Total	Total
BH1M		2/05/2018	<1	0.2	4	36	3	<0.1	15	86	<1	<0.1	<0.1	<0.5	<0.5	<0.5	<0.5	<1.5	<50	<60	<500	<500	<10	<0.01
BH2M			3	0.4	110	52	4	<0.1	3	59	<1	<0.1	<0.1	<0.5	<0.5	0.8	<0.5	<1.5	<50	<60	<500	<500	<10	<0.01
BH8M			1	0.2	27	45	4	<0.1	11	180	<1	<0.1	<0.1	<0.5	<0.5	0.9	<0.5	<1.5	<50	<60	<500	<500	<10	<0.01
GILs																								
HSL - A&B Low to high density residential [5]													NL	800	NL	NL	NL		1,000	1,000				
HSL - D Commercial / Industrial [5]													NL	5,000	NL	NL	NL		6,000	NL				
ANZECC / ARMCANZ (2000)	Marine Water [4]		2.3 (As III) 4.5 (AS V)	0.7 [3]	27 (CR III) 4.4 (Cr IV)	1.3	4.4	0.1 [3]	7	15 [2]			50 [2]	500	180 [9]	5 [9]	350 [9]	275 [9]	50 [8]	60 [8]	500 [8]	500 [8]		370
	Fresh Water [4]		24 (AsIII) 13 (AsV)	0.2	1 (CR VI)	1.4	3.4	0.06 [3]	11	8 [2]			16	950		80 [9]								
	Drinking Water [6]		10	2		2,000	10	1	20			0.01		1	800	300	600							250
	Recreational Water [7]		50	5	50	1,000	50	10	200	5,000		0.1		10	8,000	3,000	6,000							2,500 [7]

Notes:

All values are µg/L unless stated otherwise

NL = Not Limiting

NA = 'Not Analysed' i.e. the sample was not analysed.

ND = Not Detected - i.e. concentration below the laboratory PQL

F1 To obtain F1 subtract the sum of BTEX concentrations from the C6-C10 fraction.

F2 To obtain F2 subtract naphthalene from the >C10-C16 fraction.

F3 (>C16-C34)

F4 (>C34-C40)

* = For EI (2010), TRH F1 to TRH F4 was not reported. C6 - C9, C10 - C14, C15 - C28 and C29 - C36 have been reported instead of TRH F1, TRH F2, TRH F3 and TRH F4, respectively.

2 = Figure may not protect key species from chronic toxicity, refer to ANZECC & ARMCANZ (2000) for further guidance

3 = Chemical for which possible bioaccumulation and secondary poisoning effects should be considered, refer to ANZECC & ARMCANZ (2000) for further guidance

4 = NEPM (2013) Groundwater Investigation Levels for fresh and marine water quality, based on ANZECC & ARMCANZ (2000).

6 = NEPM (2013) Groundwater Investigation Levels for drinking water quality, based on Australian Drinking Water Guidelines (NHMRC 2011).

7 = Drinking Water value has been used multiplied by a factor of 10 to address the secondary contact recreation (NHMRC, 2011).

8 = In lack of a criteria the laboratory PQL has been used (DEC, 2007).

9 = Low and moderate reliability toxicity data, refer to ANZECC & ARMCANZ (2000)

Highlighted indicates analyte concentration value exceeding the adopted human health criteria

Highlighted indicates ecological criteria exceeded

Highlighted indicates criteria exceeded

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APPENDIX A
PROPOSED DEVELOPMENT PLANS

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PRELIMINARY

Revisions
P1 05.10.18 DRAFT DA NE
P2 24.10.18 BACKGROUND ISSUE MG

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Project **ELIZABETH STREET**
Drawing **COVER SHEET**
Project No **218004**
Date **14/09/18**
Author **NE**
Scale: @ A1
Drawing No. **TP00.00 P2**

26 ELIZABETH STREET
LIVERPOOL

rothelowman
Brisbane, Melbourne, Sydney
www.rothelowman.com.au

LEVEL	RESIDENTIAL	PARKING	COMMERCIAL	HOTEL	TERRACE	APARTMENTS No. 1 BEDS	No. 2 BEDS	No. 3 BEDS	No. 4 BEDS	TOTAL APARTMENTS	AMENITY No. ADAPTABLE	No. LHA	No. SOLAR	HOTEL ROOMS No. HOTEL STANDARD	No. HOTEL ACCESSIBLE	No. HOTEL SELF CONTAINED	TOTAL HOTEL
BASEMENT 4	22 m²	1860 m²	0 m²	0 m²	0 m²	0	0	0	0	0	0	0	0	0	0	0	0
BASEMENT 3	22 m²	2503 m²	0 m²	0 m²	0 m²	0	0	0	0	0	0	0	0	0	0	0	0
BASEMENT 2	21 m²	2379 m²	0 m²	0 m²	0 m²	0	0	0	0	0	0	0	0	0	0	0	0
BASEMENT 1	0 m²	1596 m²	130 m²	358 m²	0 m²	0	0	0	0	0	0	0	0	0	0	0	0
GROUND	138 m²	389 m²	43 m²	634 m²	0 m²	0	0	0	0	0	0	0	0	0	0	0	0
LEVEL 1	0 m²	1175 m²	10 m²	379 m²	0 m²	0	0	0	0	0	0	0	0	0	0	0	0
LEVEL 2	0 m²	1149 m²	615 m²	80 m²	0 m²	0	0	0	0	0	0	0	0	0	0	0	0
LEVEL 3	0 m²	0 m²	1864 m²	0 m²	13 m²	0	0	0	0	0	0	0	0	0	0	0	0
LEVEL 4	0 m²	0 m²	1830 m²	0 m²	24 m²	0	0	0	0	0	0	0	0	0	0	0	0
LEVEL 5	0 m²	0 m²	0 m²	1165 m²	14 m²	0	0	0	0	0	0	0	0	25	2	1	28
LEVEL 6	0 m²	0 m²	0 m²	1162 m²	0 m²	0	0	0	0	0	0	0	0	25	2	1	28
LEVEL 7	0 m²	0 m²	0 m²	1162 m²	0 m²	0	0	0	0	0	0	0	0	25	2	1	28
LEVEL 8	0 m²	0 m²	0 m²	1097 m²	0 m²	0	0	0	0	0	0	0	0	28	0	1	29
LEVEL 9	640 m²	0 m²	0 m²	0 m²	291 m²	0	0	0	0	0	0	0	0	0	0	0	0
LEVEL 10	628 m²	0 m²	0 m²	0 m²	82 m²	4	0	4	0	8	0	4	7	0	0	0	0
LEVEL 11	643 m²	0 m²	0 m²	0 m²	84 m²	0	8	0	0	8	1	0	6	0	0	0	0
LEVEL 12	643 m²	0 m²	0 m²	0 m²	84 m²	0	8	0	0	8	1	0	6	0	0	0	0
LEVEL 13	643 m²	0 m²	0 m²	0 m²	84 m²	0	8	0	0	8	1	0	6	0	0	0	0
LEVEL 14	643 m²	0 m²	0 m²	0 m²	84 m²	0	8	0	0	8	1	0	6	0	0	0	0
LEVEL 15	628 m²	0 m²	0 m²	0 m²	82 m²	4	0	4	0	8	0	4	7	0	0	0	0
LEVEL 16	643 m²	0 m²	0 m²	0 m²	84 m²	0	8	0	0	8	1	0	6	0	0	0	0
LEVEL 17	643 m²	0 m²	0 m²	0 m²	84 m²	0	8	0	0	8	1	0	6	0	0	0	0
LEVEL 18	643 m²	0 m²	0 m²	0 m²	84 m²	0	8	0	0	8	1	0	6	0	0	0	0
LEVEL 19	643 m²	0 m²	0 m²	0 m²	84 m²	0	8	0	0	8	1	0	6	0	0	0	0
LEVEL 20	628 m²	0 m²	0 m²	0 m²	82 m²	4	0	4	0	8	0	4	7	0	0	0	0
LEVEL 21	643 m²	0 m²	0 m²	0 m²	84 m²	0	8	0	0	8	1	0	6	0	0	0	0
LEVEL 22	643 m²	0 m²	0 m²	0 m²	84 m²	0	8	0	0	8	1	0	6	0	0	0	0
LEVEL 23	643 m²	0 m²	0 m²	0 m²	84 m²	0	8	0	0	8	1	0	6	0	0	0	0
LEVEL 24	643 m²	0 m²	0 m²	0 m²	84 m²	0	8	0	0	8	1	0	6	0	0	0	0
LEVEL 25	628 m²	0 m²	0 m²	0 m²	82 m²	4	0	4	0	8	0	4	7	0	0	0	0
LEVEL 26	643 m²	0 m²	0 m²	0 m²	84 m²	0	8	0	0	8	1	0	6	0	0	0	0
LEVEL 27	643 m²	0 m²	0 m²	0 m²	84 m²	0	8	0	0	8	1	0	6	0	0	0	0
LEVEL 28	643 m²	0 m²	0 m²	0 m²	84 m²	0	8	0	0	8	1	0	6	0	0	0	0
LEVEL 29	643 m²	0 m²	0 m²	0 m²	84 m²	0	8	0	0	8	1	0	6	0	0	0	0
LEVEL 30	628 m²	0 m²	0 m²	0 m²	82 m²	4	0	4	0	8	0	4	7	0	0	0	0
LEVEL 31	643 m²	0 m²	0 m²	0 m²	84 m²	0	8	0	0	8	1	0	6	0	0	0	0
LEVEL 32	667 m²	0 m²	0 m²	0 m²	80 m²	0	5	0	1	6	1	0	5	0	0	0	0
LEVEL 33	667 m²	0 m²	0 m²	0 m²	80 m²	0	5	0	1	6	1	0	5	0	0	0	0
LEVEL 34	667 m²	0 m²	0 m²	0 m²	80 m²	0	5	0	1	6	1	0	5	0	0	0	0
LEVEL 35	0 m²	0 m²	0 m²	342 m²	381 m²	0	0	0	0	0	0	0	0	0	0	0	0
	16908 m²	11050 m²	4492 m²	6378 m²	2803 m²	20	151	20	3	194	20	20	152	103	6	4	113

1 BED	2 BED	3 BED	4 BED	TOTAL
10%	78%	10%	2%	100%

SOLAR COMPLIANT
78.4%

NOTES

GFA
Gross Floor Area has been calculated as per the definition in the relevant Local Environmentl Plan (LEP) as shown in the GFA diagrams

SOLAR ACCESS
Living rooms and private open spaces of at least 70% of apartments in a building receive a minimum of 2 hours direct sunlight between 9am and
3pm at mid winter in the Sydney Metropolitan Area and in the Newcastle and Wollongong local government areas.

CROSS VENTILATION
Apartments at ten storeys or greater are deemed to be cross ventilated only if any enclosure of the balconies at these levels allows adequate natural ventilation and cannot be fully enclosed.

ADAPTABLE UNITS
A minimum of 10% o all apartments are to be designed to be capable of adaption for access by people with all levels of mobility. In accordance with the Australian Apaptable Housing Standard (AS 4299-1995), which includes 'pre-adaption' design details to ensure visitability is achieved.

UNIVERSAL DESIGN
20% of the total apartments in a development to incorporate the Liveable Housing Guideline's Silver Level Universal Design features.

DISCLAIMER
Areas are not to be used for the purpose of lease or sale agreements. The information in these schedules is believed forrect at the time of printing. Areas are generally measured in accordance with the Property Council of Australia Method of Measurement, unless otherwise noted above.

LEVEL	CARPARKS RESIDENTIAL	VISITOR	COMMERCIAL	HOTEL	CARESHARE	**FLOOR TOTAL**	ACCESSIBLE INCL. IN TOTAL	SERVICE	CARWASH	MOTORCYCLE / SCOOTER PARKS	BICYCLE PARKS	RESIDENTIAL STORES
BASEMENT 4	66	0	0	0	0	**66**	0	0	0	4	43	34
BASEMENT 3	84	0	0	0	0	**85**	3	0	1	4	25	77
BASEMENT 2	53	20	0	0	0	**73**	18	0	0	4	31	38
BASEMENT 1	0	0	45	0	0	**46**	1	1	0	3	23	0
LEVEL 1	0	0	0	26	3	**33**	2	4	0	3	8	0
LEVEL 2	0	0	0	35	0	**35**	2	0	0	1	26	0
TOTAL	**203**	**20**	**45**	**61**	**3**	**338**	**26**	**5**	**1**	**19**	**156**	**149**

CAR SHARE SPACES
TO MAKE UP THE SHORTFALL IN CAR PARKING SPACES SHARE CARS SPACES ARE PROPOSED AS INDICATED ON PLANS

CAR PARKING PROVISION		
	Rates	Reqd.
1 bed	1	
2 bed	1	
3+ bed	1.5	
Resident		206
Visitor	0.1	20
Commercial	1 / 100sqm	45
Hotel	1 / 100sqm	67
Total		338

MOTORBIKE PROVISION		
	Rates	Reqd.
Residential	0.05 x car	12
Commercial	0.05 x car	3
Hotel	0.05 x car	4
Total		19

BICYCLE PROVISION		
	Rates	Reqd.
Residential	1 / 200sqm	99
Commercial	1 / 200sqm	23
Hotel	1 / 200sqm	34
Total		156

SITE AREA	PERMISSIBLE FSR	MAXIMUM GFA
3082m²	1:10	30,820m²

PROGRAM	GFA
COMMERCIAL	4500 m²
HOTEL	6700 m²
RESIDENTIAL	19620 m²
	30820 m²

PRELIMINARY

Revisions
P1 05.10.18 DRAFT DA NE
P2 24.10.18 BACKGROUND ISSUE MG

24/10/2018 5:16:19 PM

Project **ELIZABETH STREET**
26 ELIZABETH STREET
LIVERPOOL

Drawing **DEVELOPMENT SUMMARY**

Project No **218004** Date **14/09/18** Author **YY** Scale: @ A1 **1 : 200** Drawing No. **TP00.01 P2**

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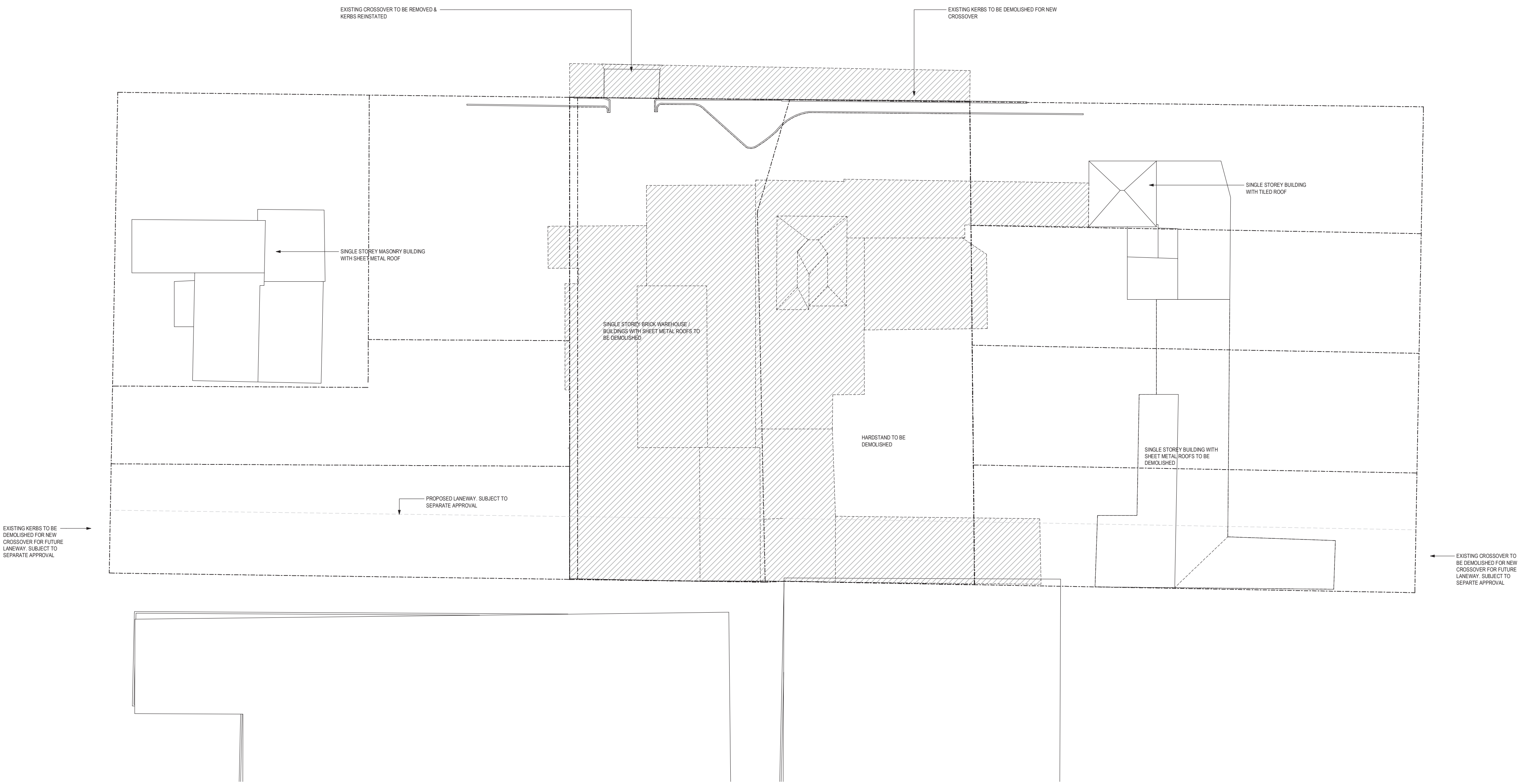

NOTE: ALL STRUCTURES, PLANTER BEDS AND PAVING WITHIN THE SITE BOUNDARY ARE TO BE DEMOILSHED UNLESS NOTED OTHERWISE.

PRELIMINARY

Revisions				
P1	05.10.18	DRAFT DA	NE
P2	24.10.18	BACKGROUND ISSUE	MG

Project: ELIZABETH STREET
26 ELIZABETH STREET
LIVERPOOL

Drawing: EXISTING / DEMOLITION PLAN

Project No: 218004

Date: 14/09/18

Author: MG

Scale: @ A1: 1 : 250

Drawing No.: TP00.02 P2

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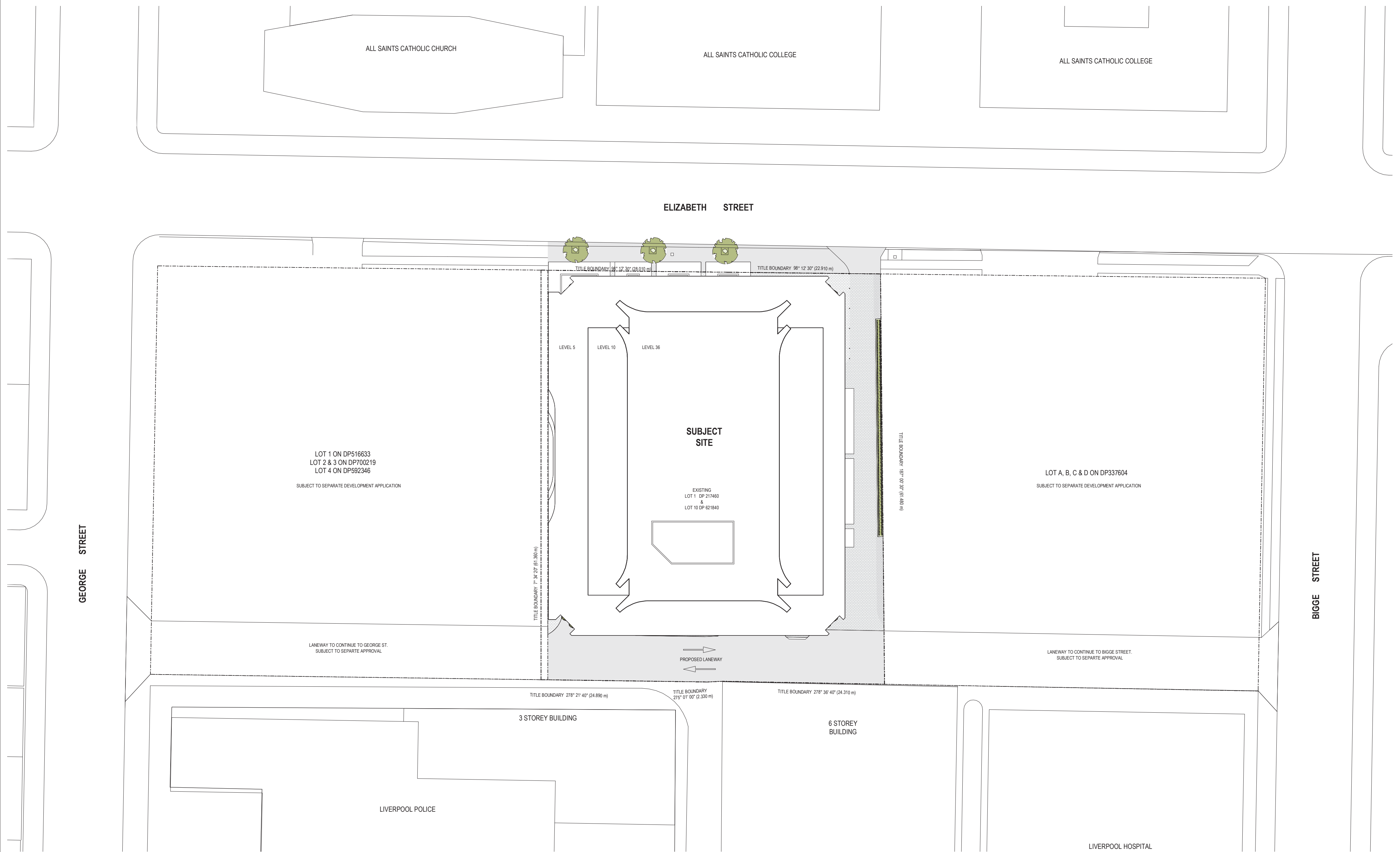
24/10/2018 5:16:24 PM



PRELIMINARY

Revisions

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P5	10.09.18	BACKGROUND ISSUE	NE
P6	20.09.18	ISSUE FOR INFORMATION	MG
P7	05.10.18	DRAFT DA	NE
P8	24.10.18	BACKGROUND ISSUE	MG

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Project **ELIZABETH STREET**

Drawing **PROPOSED SITE PLAN**

Project No **218004**

Date **14/09/18**

Author **MG**

Scale: @ A1 **1 : 250**

Drawing No. **TP00.03 P8**

26 ELIZABETH STREET
LIVERPOOL

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NOTE: SURVEY PROVIDED BY PROJECT SURVEYORS

PRELIMINARY

Revisions

P1	05.10.18	DRAFT DA	NE
P2	24.10.18	BACKGROUND ISSUE	MG

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Project **ELIZABETH STREET**

26 ELIZABETH STREET
LIVERPOOL

Drawing **SITE SURVEY**

Project No **218004**

Date **02/10/18**

Author **MG**

Scale: @ A1

Drawing No. **TP00.04 P2**

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Revisions

P1	05.10.18	DRAFT DA	NE
P2	24.10.18	BACKGROUND ISSUE	MG

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- LANEWAY TO BE DEDICATED TO COUNCIL
- LANEWAY TO BE HELD BY THE SITE OWNER AND RIGHT OF WAY GRANTED TO PEDESTRIANS AND VEHICLES
- PEDESTRIAN ZONE WITHIN SITE BOUNDARY TO BE HELD BY THE SITE OWNER

Project: **ELIZABETH STREET**
26 ELIZABETH STREET
LIVERPOOL

Drawing: **SITE DEDICATION PLAN**

Project No: **218004**

Date: **14/09/18**

Author: **NE**

Scale: @ A1: **As indicated**

Drawing No.: **TP00.05 P2**

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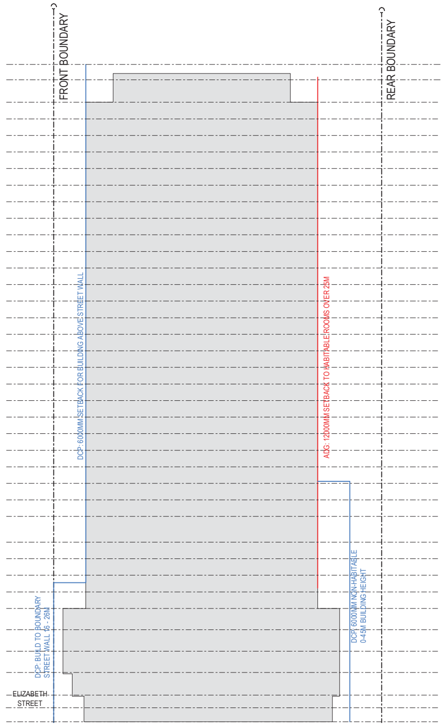
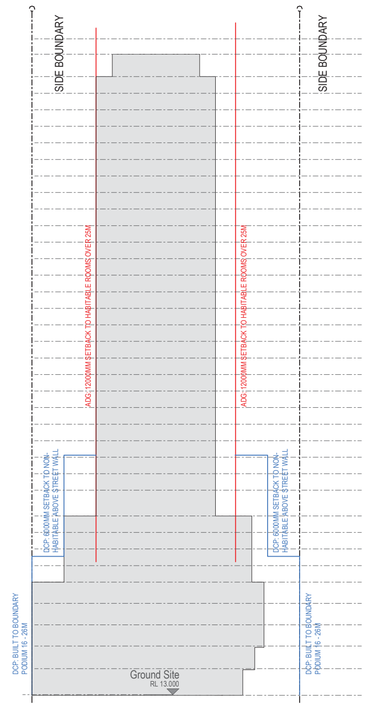


CONSTRAINTS SECTION
2 FRONT&REAR - ADG&DCP
SCALE 1 : 500



CONSTRAINTS SECTION
3 TP09.12 SIDE - ADG&DCP
SCALE 1 : 500

PRELIMINARY

Revisions
P1 05.10.18 DRAFT DA NE
P2 24.10.18 BACKGROUND ISSUE MG

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Project **ELIZABETH STREET**
26 ELIZABETH STREET
LIVERPOOL

Drawing **CONSTRAINTS PLAN AND SECTION**

Project No **218004**
Date **14/09/18**
Author **YY**
Scale: @ A1 **1 : 500**
Drawing No. **TP00.06 P2**

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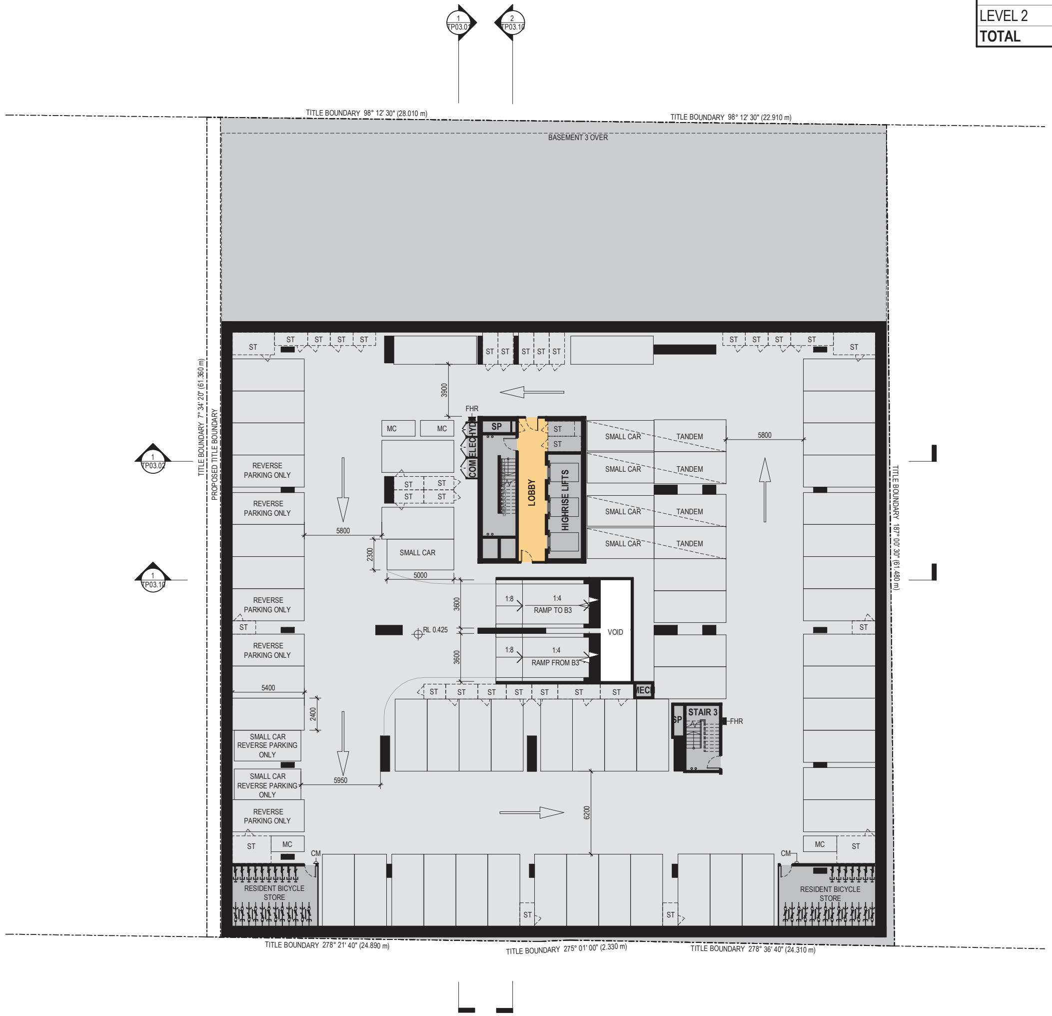
LEVEL	CARPARKS RESIDENTIAL	VISITOR	COMMERCIAL	HOTEL	CARESHARE	FLOOR TOTAL	ACCESSIBLE INCL. IN TOTAL
BASEMENT 4	66	0	0	0	0	**66**	0
BASEMENT 3	84	0	0	0	0	**85**	3
BASEMENT 2	53	20	0	0	0	**73**	18
BASEMENT 1	0	0	45	0	0	**46**	1
LEVEL 1	0	0	0	26	3	**33**	2
LEVEL 2	0	0	0	35	0	**35**	2
TOTAL	**203**	**20**	**45**	**61**	**3**	**338**	**26**



PRELIMINARY

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P5	26.09.18	ISSUE FOR INFORMATION	MG
P6	04.10.18	ISSUE FOR INFORMATION	MG
P7	05.10.18	DRAFT DA	NE
P8	24.10.18	BACKGROUND ISSUE	MG

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ABBREVIATIONS LEGEND

COM	COMMUNICATIONS SERVICES
CM	CONVEX MIRROR
EL	ELECTRICAL SERVICES
ELEC	ELECTRICAL SERVICES
EOT	END OF TRIP FACILITIES
EX	FIRE EXTINGUISHER
FHR	FIRE HOSE REEL
HY	HYDRAULIC RISERS
HYD	HYDRAULIC SERVICES
IC	INTERCOM / CARD READER
M	MECHANICAL RISERS
MECH	MECHANICAL SERVICES
M	MECHANICAL RISERS
MECH	MECHANICAL SERVICES
MC	MOTORCYCLE PARK
OSD	ON SITE DETENTION
RF	REFUSE CHUTE
ST	STORE
SP	STAIR PRESSURISATION
VD	VEHICLE DETECTOR IN SLAB
WL	VEHICLE WARNING LIGHT

COLOUR FILL LEGEND

COMMERCIAL

RESIDENTIAL

HOTEL

Project **ELIZABETH STREET**

26 ELIZABETH STREET
LIVERPOOL

Drawing **BASEMENT 4 PLAN**

Project No **218004**

Date **14/09/18**

Author **MG**

Scale: @ A1 **1 : 200**

Drawing No. **TP01.00 P8**

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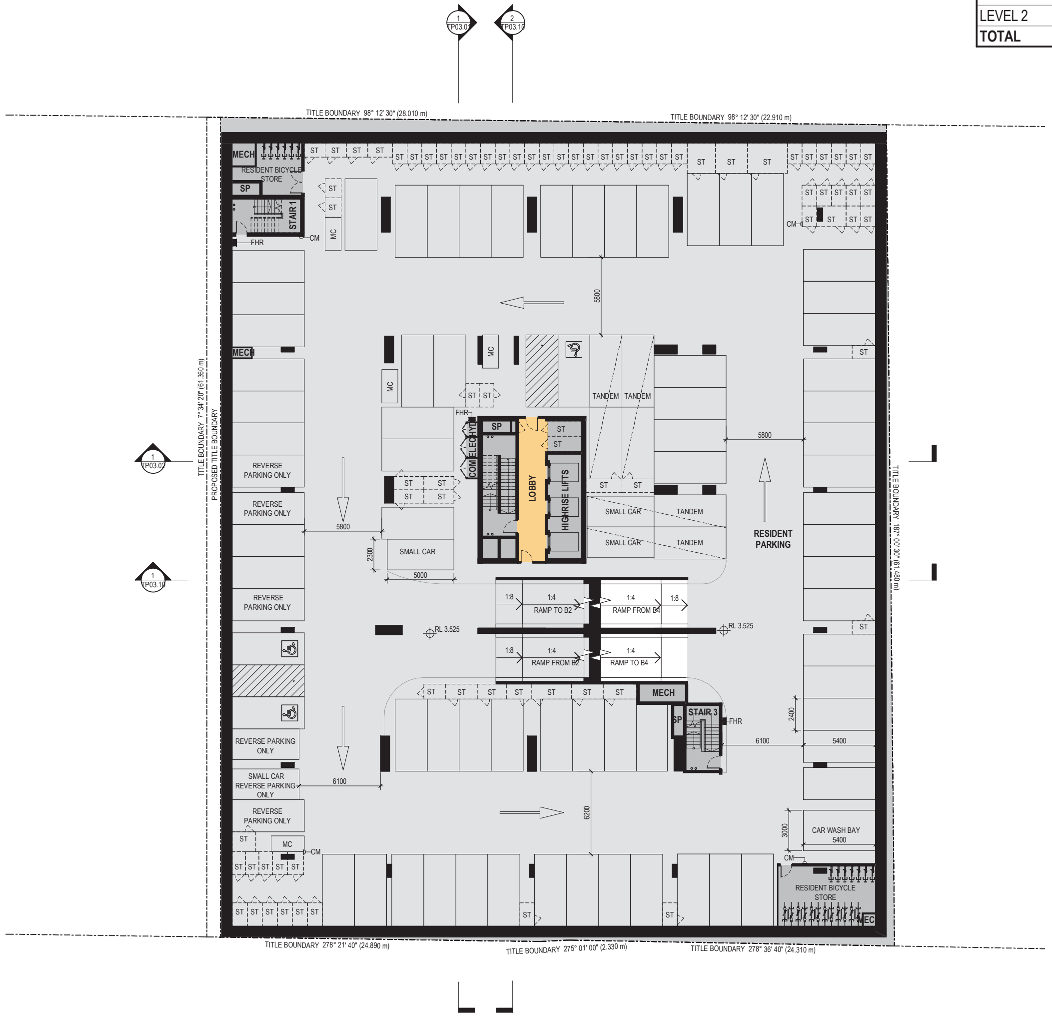
LEVEL	CARPARKS						
	RESIDENTIAL	VISITOR	COMMERCIAL	HOTEL	CARESHARE	**FLOOR TOTAL**	ACCESSIBLE INCL. IN TOTAL
BASEMENT 4	66	0	0	0	0	**66**	0
BASEMENT 3	84	0	0	0	0	**85**	3
BASEMENT 2	53	20	0	0	0	**73**	18
BASEMENT 1	0	0	45	0	0	**46**	1
LEVEL 1	0	0	0	26	3	**33**	2
LEVEL 2	0	0	0	35	0	**35**	2
TOTAL	**203**	**20**	**45**	**61**	**3**	**338**	**26**



PRELIMINARY

Revisions

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P16	26.09.18	ISSUE FOR INFORMATION	MG
P17	04.10.18	ISSUE FOR INFORMATION	MG
P18	05.10.18	DRAFT DA	NE
P19	24.10.18	BACKGROUND ISSUE	MG

24/10/2018 5:16:59 PM

ABBREVIATIONS LEGEND

COM	COMMUNICATIONS SERVICES
CM	CONVEX MIRROR
EL	ELECTRICAL SERVICES
ELEC	ELECTRICAL SERVICES
EOT	END OF TRIP FACILITIES
EX	FIRE EXTINGUISHER
FHR	FIRE HOSE REEL
HY	HYDRAULIC RISERS
HYD	HYDRAULIC SERVICES
IC	INTERCOM / CARD READER
M	MECHANICAL RISERS
MECH	MECHANICAL SERVICES
M	MECHANICAL RISERS
MECH	MECHANICAL SERVICES
MC	MOTORCYCLE PARK
OSD	ON SITE DETENTION
RF	REFUSE CHUTE
ST	STORE
SP	STAIR PRESSURISATION
VD	VEHICLE DETECTOR IN SLAB
WL	VEHICLE WARNING LIGHT

COLOUR FILL LEGEND

COMMERCIAL
RESIDENTIAL
HOTEL

Project: **ELIZABETH STREET**

26 ELIZABETH STREET
LIVERPOOL

Drawing: **BASEMENT 3 PLAN**

Project No: **218004**

Date: **14/09/18**

Author: **MG**

Scale: @ A1: **1 : 200**

Drawing No.: **TP01.01 P19**

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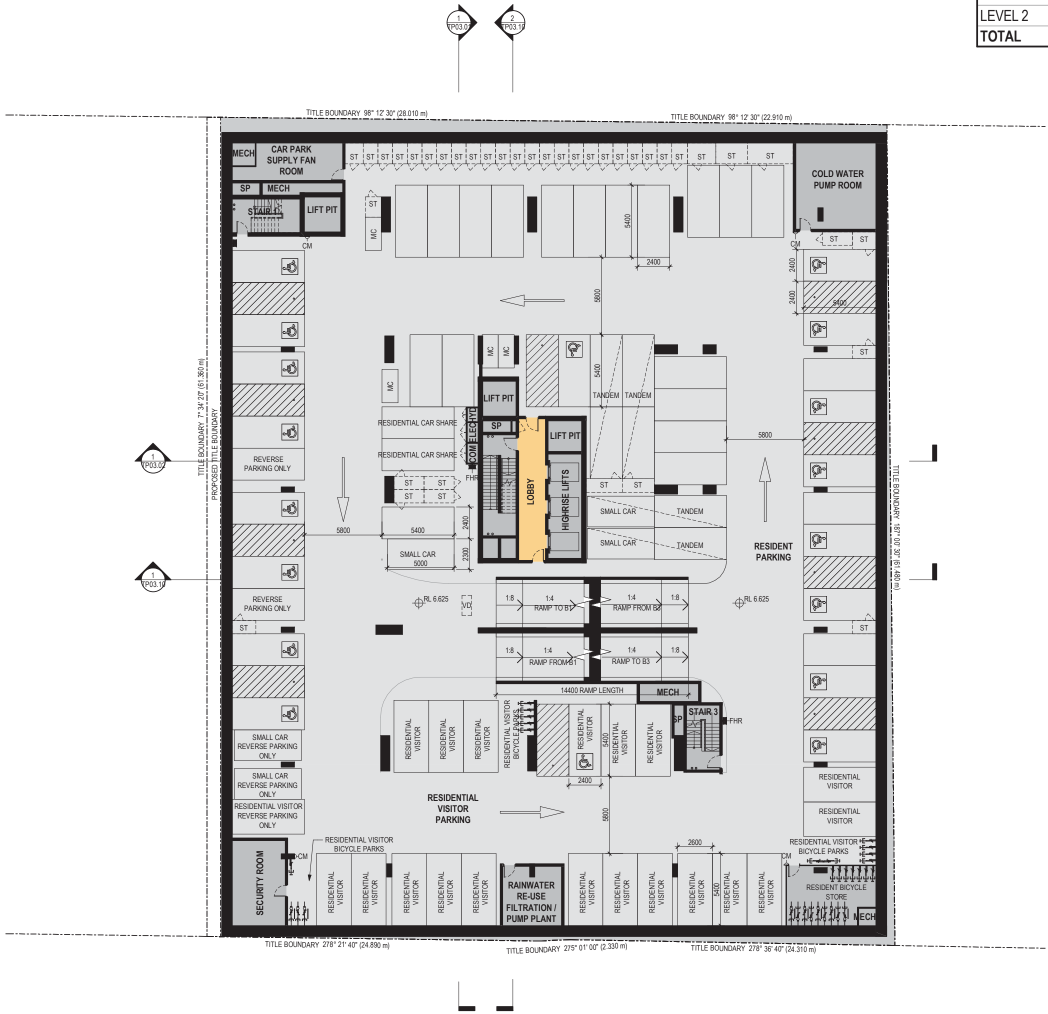
LEVEL	CARPARKS RESIDENTIAL	VISITOR	COMMERCIAL	HOTEL	CARESHARE	FLOOR TOTAL	ACCESSIBLE INCL. IN TOTAL
BASEMENT 4	66	0	0	0	0	**66**	0
BASEMENT 3	84	0	0	0	0	**85**	3
BASEMENT 2	53	20	0	0	0	**73**	18
BASEMENT 1	0	0	45	0	0	**46**	1
LEVEL 1	0	0	0	26	3	**33**	2
LEVEL 2	0	0	0	35	0	**35**	2
TOTAL	**203**	**20**	**45**	**61**	**3**	**338**	**26**



PRELIMINARY

Revisions

P16	20.09.18	ISSUE FOR INFORMATION	MG
P17	26.09.18	ISSUE FOR INFORMATION	MG
P18	04.10.18	ISSUE FOR INFORMATION	MG
P19	05.10.18	DRAFT DA	NE
P20	24.10.18	BACKGROUND ISSUE	MG

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ABBREVIATIONS LEGEND

COM	COMMUNICATIONS SERVICES
CM	CONVEX MIRROR
EL	ELECTRICAL SERVICES
ELEC	ELECTRICAL SERVICES
EOT	END OF TRIP FACILITIES
EX	FIRE EXTINGUISHER
FHR	FIRE HOSE REEL
HY	HYDRAULIC RISERS
HYD	HYDRAULIC SERVICES
IC	INTERCOM / CARD READER
M	MECHANICAL RISERS
MECH	MECHANICAL SERVICES
M	MECHANICAL RISERS
MECH	MECHANICAL SERVICES
MC	MOTORCYCLE PARK
OSD	ON SITE DETENTION
RF	REFUSE CHUTE
ST	STORE
SP	STAIR PRESSURISATION
VD	VEHICLE DETECTOR IN SLAB
WL	VEHICLE WARNING LIGHT

COLOUR FILL LEGEND

COMMERCIAL
RESIDENTIAL
HOTEL

Project: **ELIZABETH STREET**

26 ELIZABETH STREET
LIVERPOOL

Drawing: **BASEMENT 2 PLAN**

Project No: **218004**

Date: **14/09/18**

Author: **MG**

Scale: @ A1: **1 : 200**

Drawing No.: **TP01.02 P20**

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LEVEL	CARPARKS RESIDENTIAL	VISITOR	COMMERCIAL	HOTEL	CARESHARE	FLOOR TOTAL	ACCESSIBLE INCL. IN TOTAL
BASEMENT 4	66	0	0	0	0	**66**	0
BASEMENT 3	84	0	0	0	0	**85**	3
BASEMENT 2	53	20	0	0	0	**73**	18
BASEMENT 1	0	0	45	0	0	**46**	1
LEVEL 1	0	0	0	26	3	**33**	2
LEVEL 2	0	0	0	35	0	**35**	2
TOTAL	**203**	**20**	**45**	**61**	**3**	**338**	**26**

PRELIMINARY

Revisions

P16	20.09.18	ISSUE FOR INFORMATION	MG
P17	26.09.18	ISSUE FOR INFORMATION	MG
P18	04.10.18	ISSUE FOR INFORMATION	MG
P19	05.10.18	DRAFT DA	NE
P20	24.10.18	BACKGROUND ISSUE	MG

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ABBREVIATIONS LEGEND

COM	COMMUNICATIONS SERVICES
CM	CONVEX MIRROR
EL	ELECTRICAL SERVICES
ELEC	ELECTRICAL SERVICES
EOT	END OF TRIP FACILITIES
EX	FIRE EXTINGUISHER
FHR	FIRE HOSE REEL
HY	HYDRAULIC RISERS
HYD	HYDRAULIC SERVICES
IC	INTERCOM / CARD READER
M	MECHANICAL RISERS
MECH	MECHANICAL SERVICES
M	MECHANICAL RISERS
MECH	MECHANICAL SERVICES
MC	MOTORCYCLE PARK
OSD	ON SITE DETENTION
RF	REFUSE CHUTE
ST	STORE
SP	STAIR PRESSURISATION
VD	VEHICLE DETECTOR IN SLAB
WL	VEHICLE WARNING LIGHT

COLOUR FILL LEGEND

COMMERCIAL

RESIDENTIAL

HOTEL

Project **ELIZABETH STREET**

26 ELIZABETH STREET
LIVERPOOL

Drawing **BASEMENT 1 PLAN**

Project No **218004**

Date **14/09/18**

Author **MG**

Scale: @ A1 **1 : 200**

Drawing No. **TP01.03 P20**

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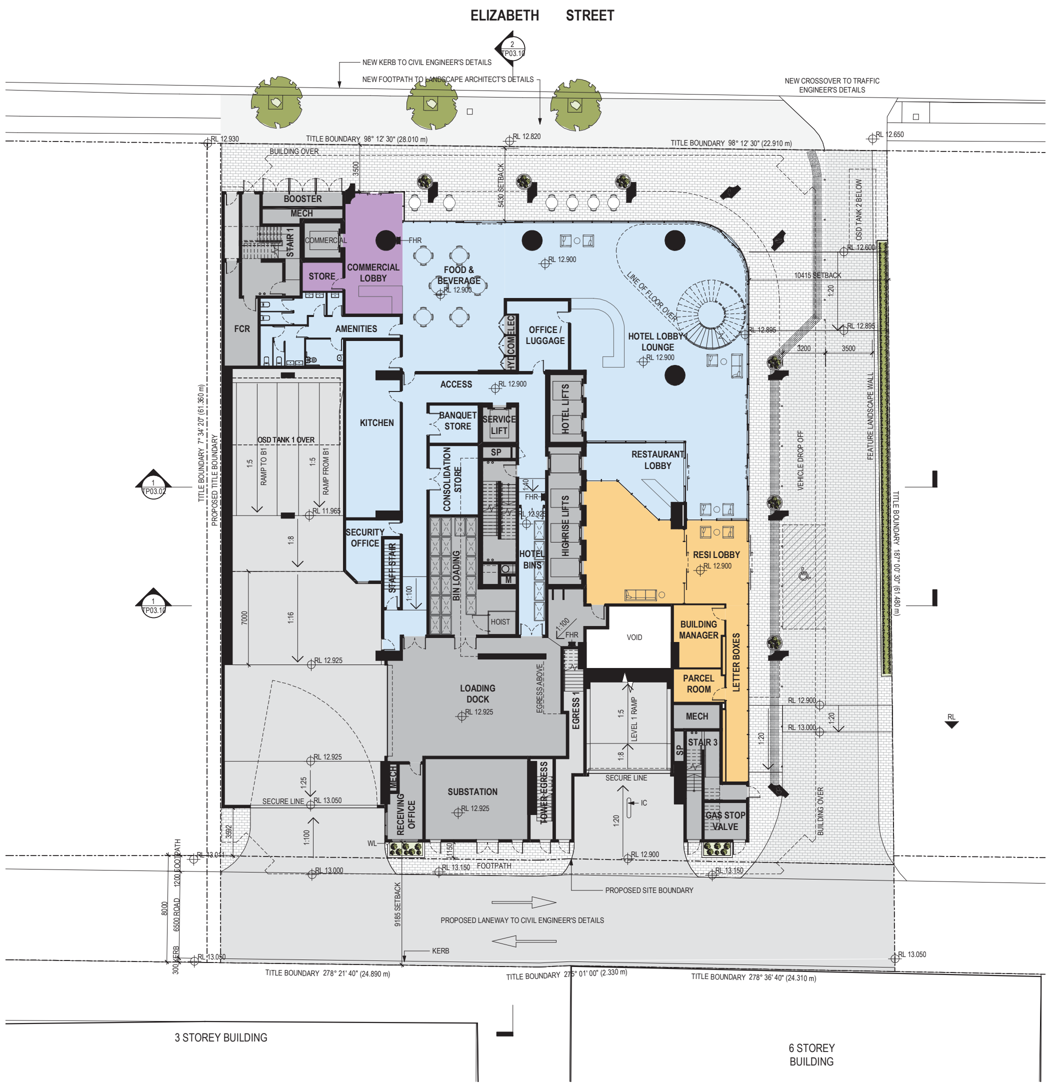

PRELIMINARY

Revisions

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P16	20.09.18	ISSUE FOR INFORMATION	MG
P17	04.10.18	ISSUE FOR INFORMATION	MG
P18	05.10.18	DRAFT DA	NE
P19	24.10.18	BACKGROUND ISSUE	MG

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ABBREVIATIONS LEGEND

COM	COMMUNICATIONS SERVICES
CM	CONVEX MIRROR
EL	ELECTRICAL SERVICES
ELEC	ELECTRICAL SERVICES
EOT	END OF TRIP FACILITIES
EX	FIRE EXTINGUISHER
FHR	FIRE HOSE REEL
HY	HYDRAULIC RISERS
HYD	HYDRAULIC SERVICES
IC	INTERCOM / CARD READER
M	MECHANICAL RISERS
MECH	MECHANICAL SERVICES
M	MECHANICAL RISERS
MECH	MECHANICAL SERVICES
MC	MOTORCYCLE PARK
OSD	ON SITE DETENTION
RF	REFUSE CHUTE
ST	STORE
SP	STAIR PRESSURISATION
VD	VEHICLE DETECTOR IN SLAB
WL	VEHICLE WARNING LIGHT

COLOUR FILL LEGEND

COMMERCIAL
RESIDENTIAL
HOTEL

Project: **ELIZABETH STREET**

26 ELIZABETH STREET
LIVERPOOL

Drawing: **GROUND PLAN**

Project No: **218004**

Date: **14/09/18**

Author: **MG**

Scale: @ A1: **1 : 200**

Drawing No.: **TP01.04 P19**

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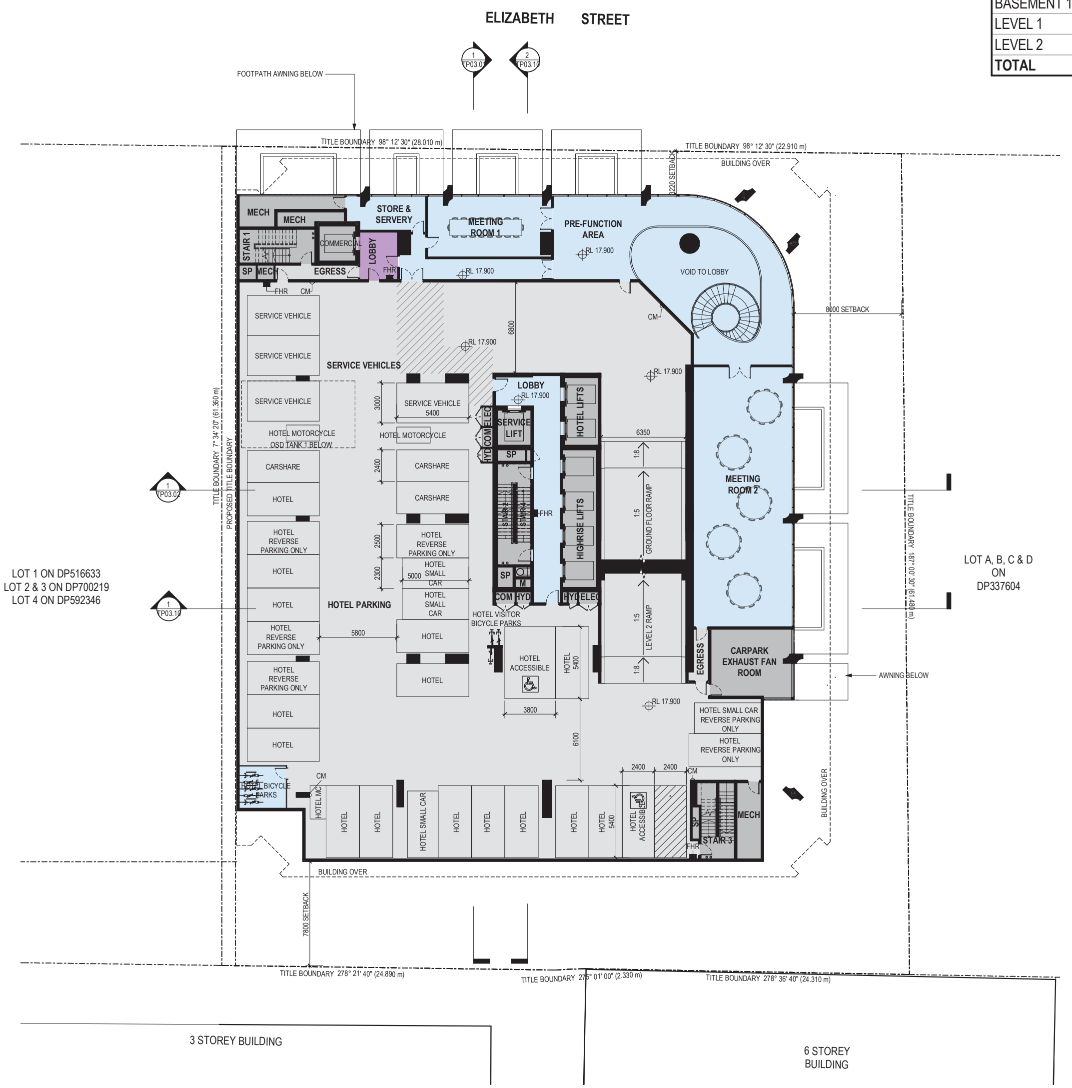
LEVEL	CARPARKS						
	RESIDENTIAL	VISITOR	COMMERCIAL	HOTEL	CARESHARE	**FLOOR TOTAL**	ACCESSIBLE INCL. IN TOTAL
BASEMENT 4	66	0	0	0	0	**66**	0
BASEMENT 3	84	0	0	0	0	**85**	3
BASEMENT 2	53	20	0	0	0	**73**	18
BASEMENT 1	0	0	45	0	0	**46**	1
LEVEL 1	0	0	0	26	3	**33**	2
LEVEL 2	0	0	0	35	0	**35**	2
TOTAL	**203**	**20**	**45**	**61**	**3**	**338**	**26**



PRELIMINARY

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P16	20.09.18	ISSUE FOR INFORMATION	MG
P17	04.10.18	ISSUE FOR INFORMATION	MG
P18	05.10.18	DRAFT DA	NE
P19	24.10.18	BACKGROUND ISSUE	MG

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ABBREVIATIONS LEGEND

COM	COMMUNICATIONS SERVICES
CM	CONVEX MIRROR
EL	ELECTRICAL SERVICES
ELEC	ELECTRICAL SERVICES
EOT	END OF TRIP FACILITIES
EX	FIRE EXTINGUISHER
FHR	FIRE HOSE REEL
HY	HYDRAULIC RISERS
HYD	HYDRAULIC SERVICES
IC	INTERCOM / CARD READER
M	MECHANICAL RISERS
MECH	MECHANICAL SERVICES
M	MECHANICAL RISERS
MECH	MECHANICAL SERVICES
MC	MOTORCYCLE PARK
OSD	ON SITE DETENTION
RF	REFUSE CHUTE
ST	STORE
SP	STAIR PRESSURISATION
VD	VEHICLE DETECTOR IN SLAB
WL	VEHICLE WARNING LIGHT

COLOUR FILL LEGEND

COMMERCIAL
RESIDENTIAL
HOTEL

Project: **ELIZABETH STREET**

Drawing: **LEVEL 1 PLAN**

Project No: **218004**

Date: **14/09/18**

Author: **MG**

Scale: @ A1: **1 : 200**

Drawing No.: **TP01.05 P19**

26 ELIZABETH STREET
LIVERPOOL

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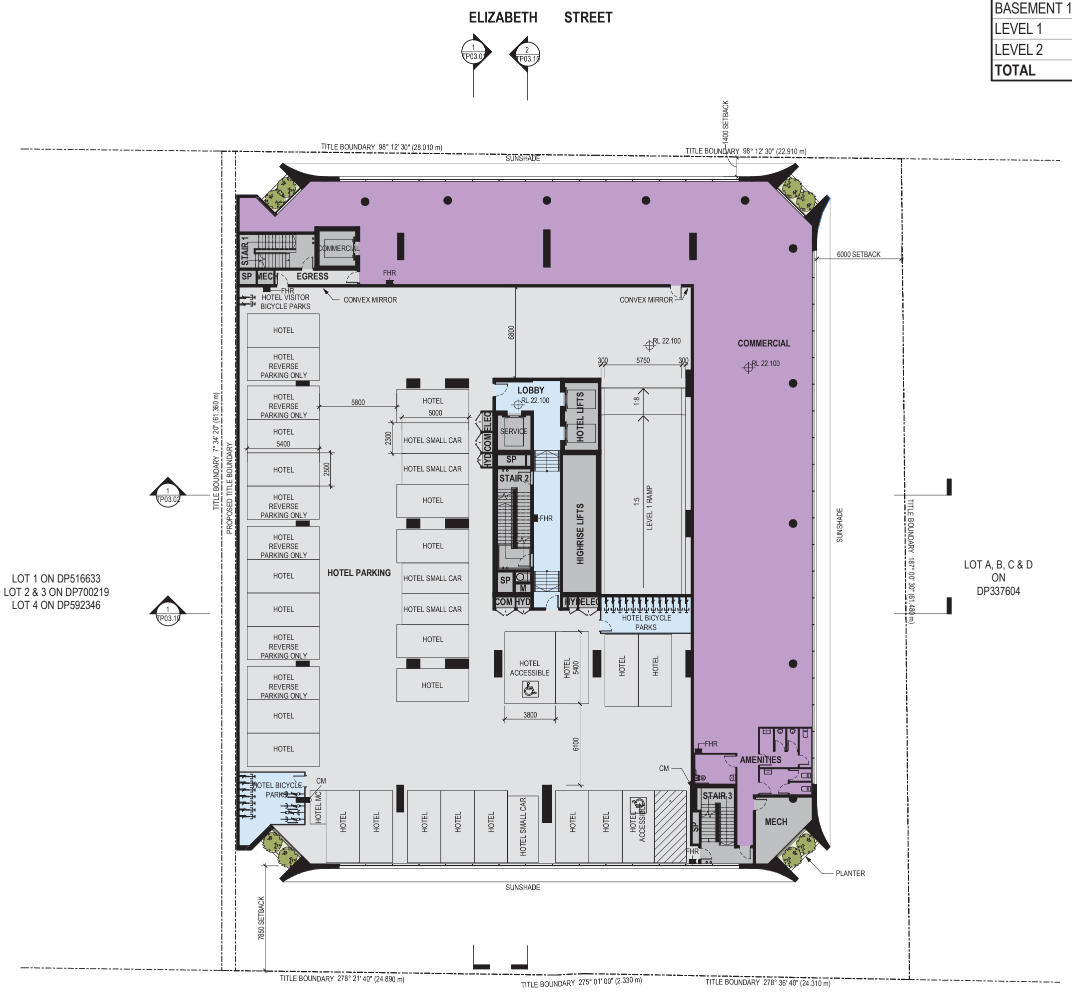
LEVEL	CARPARKS						
	RESIDENTIAL	VISITOR	COMMERCIAL	HOTEL	CARESHARE	**FLOOR TOTAL**	ACCESSIBLE INCL. IN TOTAL
BASEMENT 4	66	0	0	0	0	**66**	0
BASEMENT 3	84	0	0	0	0	**85**	3
BASEMENT 2	53	20	0	0	0	**73**	18
BASEMENT 1	0	0	45	0	0	**46**	1
LEVEL 1	0	0	0	26	3	**33**	2
LEVEL 2	0	0	0	35	0	**35**	2
TOTAL	**203**	**20**	**45**	**61**	**3**	**338**	**26**



PRELIMINARY

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P15	04.10.18	ISSUE FOR INFORMATION	MG
P16	05.10.18	DRAFT DA	NE
P17	24.10.18	BACKGROUND ISSUE	MG

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ABBREVIATIONS LEGEND

COM	COMMUNICATIONS SERVICES
CM	CONVEX MIRROR
EL	ELECTRICAL SERVICES
ELEC	ELECTRICAL SERVICES
EOT	END OF TRIP FACILITIES
EX	FIRE EXTINGUISHER
FHR	FIRE HOSE REEL
HY	HYDRAULIC RISERS
HYD	HYDRAULIC SERVICES
IC	INTERCOM / CARD READER
M	MECHANICAL RISERS
MECH	MECHANICAL SERVICES
M	MECHANICAL RISERS
MECH	MECHANICAL SERVICES
MC	MOTORCYCLE PARK
OSD	ON SITE DETENTION
RF	REFUSE CHUTE
ST	STORE
SP	STAIR PRESSURISATION
VD	VEHICLE DETECTOR IN SLAB
WL	VEHICLE WARNING LIGHT

COLOUR FILL LEGEND

COMMERCIAL
RESIDENTIAL
HOTEL

Project: **ELIZABETH STREET**

26 ELIZABETH STREET
LIVERPOOL

Drawing: **LEVEL 2 PLAN**

Project No: **218004**

Date: **14/09/18**

Author: **MG**

Scale: @ A1: **1 : 200**

Drawing No.: **TP01.06 P17**

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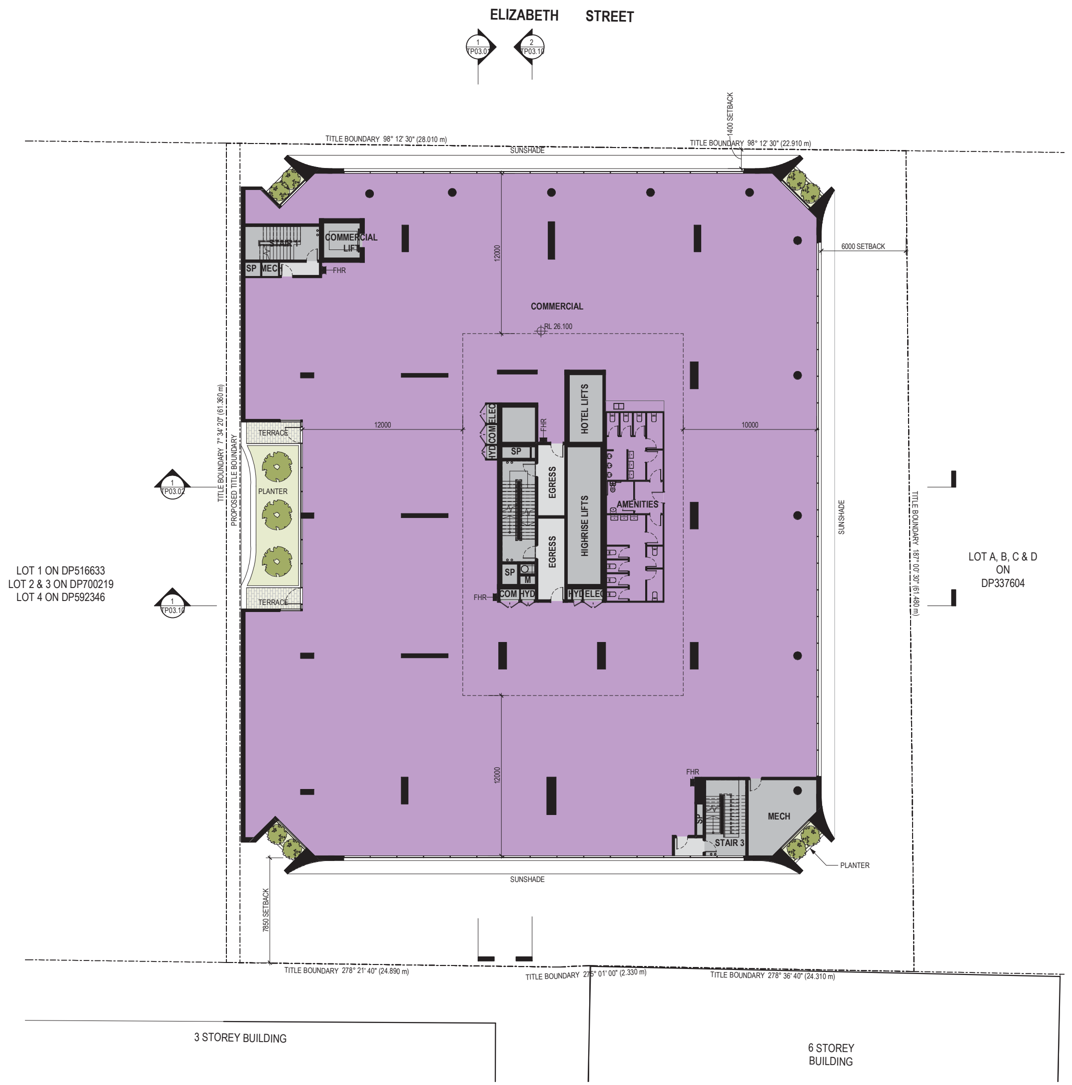

PRELIMINARY

Revisions

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P14	20.09.18	ISSUE FOR INFORMATION	MG
P15	04.10.18	ISSUE FOR INFORMATION	MG
P16	05.10.18	DRAFT DA	NE
P17	24.10.18	BACKGROUND ISSUE	MG

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ABBREVIATIONS LEGEND

COM	COMMUNICATIONS SERVICES
CM	CONVEX MIRROR
EL	ELECTRICAL SERVICES
ELEC	ELECTRICAL SERVICES
EOT	END OF TRIP FACILITIES
EX	FIRE EXTINGUISHER
FHR	FIRE HOSE REEL
HY	HYDRAULIC RISERS
HYD	HYDRAULIC SERVICES
IC	INTERCOM / CARD READER
M	MECHANICAL RISERS
MECH	MECHANICAL SERVICES
M	MECHANICAL RISERS
MECH	MECHANICAL SERVICES
MC	MOTORCYCLE PARK
OSD	ON SITE DETENTION
RF	REFUSE CHUTE
ST	STORE
SP	STAIR PRESSURISATION
VD	VEHICLE DETECTOR IN SLAB
WL	VEHICLE WARNING LIGHT

COLOUR FILL LEGEND

COMMERCIAL
RESIDENTIAL
HOTEL

Project **ELIZABETH STREET**

26 ELIZABETH STREET
LIVERPOOL

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Drawing **LEVEL 3 PLAN**

Project No **218004**

Date **14/09/18**

Author **MG**

Scale: @ A1 **1 : 200**

Drawing No. **TP01.07 P17**

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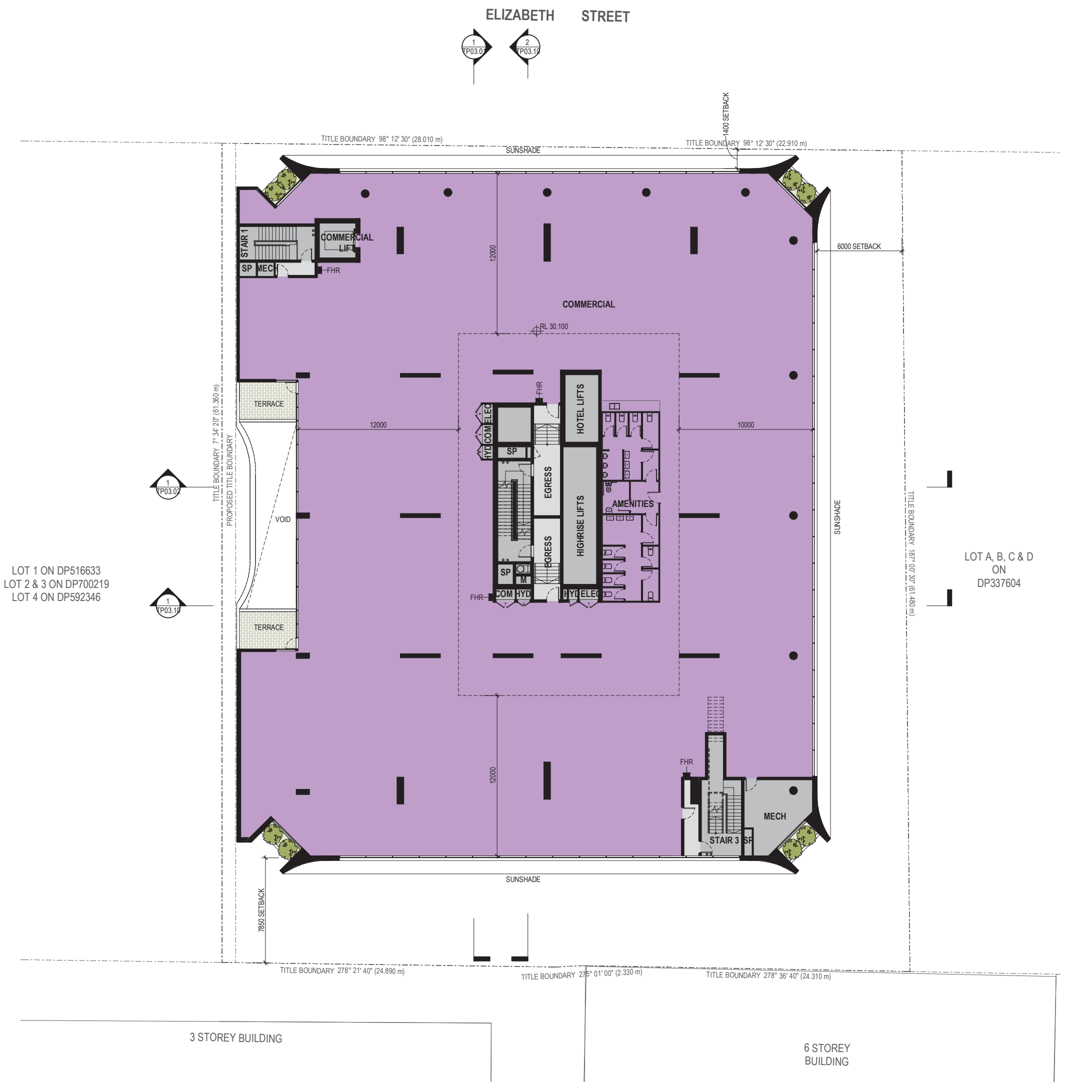

PRELIMINARY

Revisions

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P14	04.10.18	ISSUE FOR INFORMATION	MG
P15	05.10.18	DRAFT DA	NE
P16	24.10.18	BACKGROUND ISSUE	MG

24/10/2018 5:17:43 PM

ABBREVIATIONS LEGEND

COM	COMMUNICATIONS SERVICES	M	MECHANICAL RISERS
CM	CONVEX MIRROR	MECH	MECHANICAL SERVICES
EL	ELECTRICAL SERVICES	MC	MOTORCYCLE PARK
ELEC	ELECTRICAL SERVICES	OSD	ON SITE DETENTION
EOT	END OF TRIP FACILITIES	RF	REFUSE CHUTE
EX	FIRE EXTINGUISHER	ST	STORE
FHR	FIRE HOSE REEL	SP	STAIR PRESSURISATION
HY	HYDRAULIC RISERS	VD	VEHICLE DETECTOR IN SLAB
HYD	HYDRAULIC SERVICES	WL	VEHICLE WARNING LIGHT
IC	INTERCOM / CARD READER		
M	MECHANICAL RISERS		
MECH	MECHANICAL SERVICES		

COLOUR FILL LEGEND

COMMERCIAL
RESIDENTIAL
HOTEL

Project **ELIZABETH STREET**

26 ELIZABETH STREET
LIVERPOOL

Drawing **LEVEL 4 PLAN**

Project No **218004** Date **14/09/18** Author **MG** Scale: @ A1 **1 : 200**

Drawing No. **TP01.08 P16**

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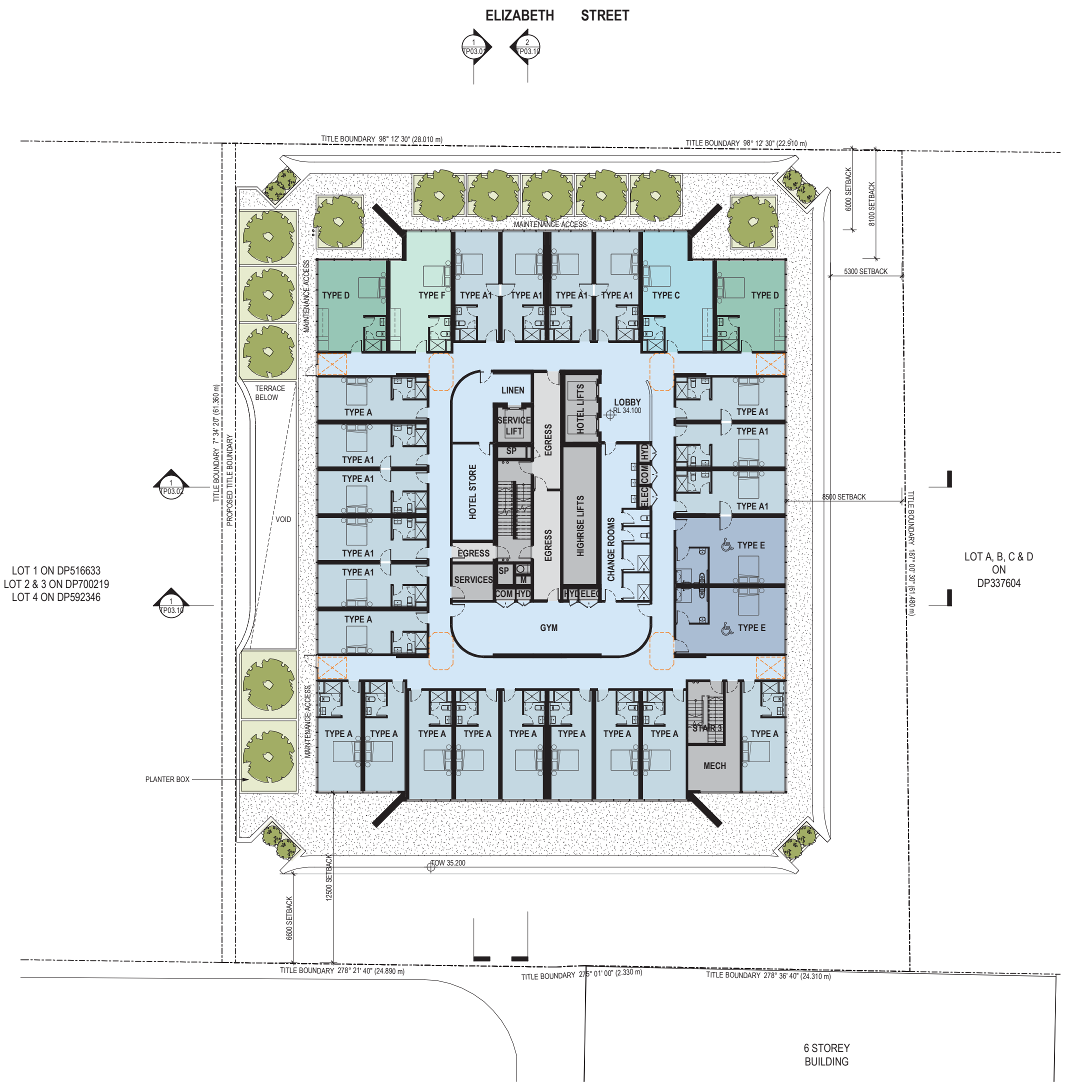

PRELIMINARY

Revisions

P13	20.09.18	ISSUE FOR INFORMATION	MG
P14	26.09.18	ISSUE FOR INFORMATION	MG
P15	04.10.18	ISSUE FOR INFORMATION	MG
P16	05.10.18	DRAFT DA	NE
P17	24.10.18	BACKGROUND ISSUE	MG

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ABBREVIATIONS LEGEND

COM	COMMUNICATIONS SERVICES
CM	CONVEX MIRROR
EL	ELECTRICAL SERVICES
ELEC	ELECTRICAL SERVICES
EOT	END OF TRIP FACILITIES
EX	FIRE EXTINGUISHER
FHR	FIRE HOSE REEL
HY	HYDRAULIC RISERS
HYD	HYDRAULIC SERVICES
IC	INTERCOM / CARD READER
M	MECHANICAL RISERS
MECH	MECHANICAL SERVICES
M	MECHANICAL RISERS
MECH	MECHANICAL SERVICES
MC	MOTORCYCLE PARK
OSD	ON SITE DETENTION
RF	REFUSE CHUTE
ST	STORE
SP	STAIR PRESSURISATION
VD	VEHICLE DETECTOR IN SLAB
WL	VEHICLE WARNING LIGHT

COLOUR FILL LEGEND

COMMERCIAL
RESIDENTIAL
HOTEL

Project **ELIZABETH STREET**

26 ELIZABETH STREET
LIVERPOOL

Drawing **LEVEL 5 PLAN**

Project No **218004**

Date **14/09/18**

Author **MG**

Scale: @ A1 **1 : 200**

Drawing No. **TP01.09 P17**

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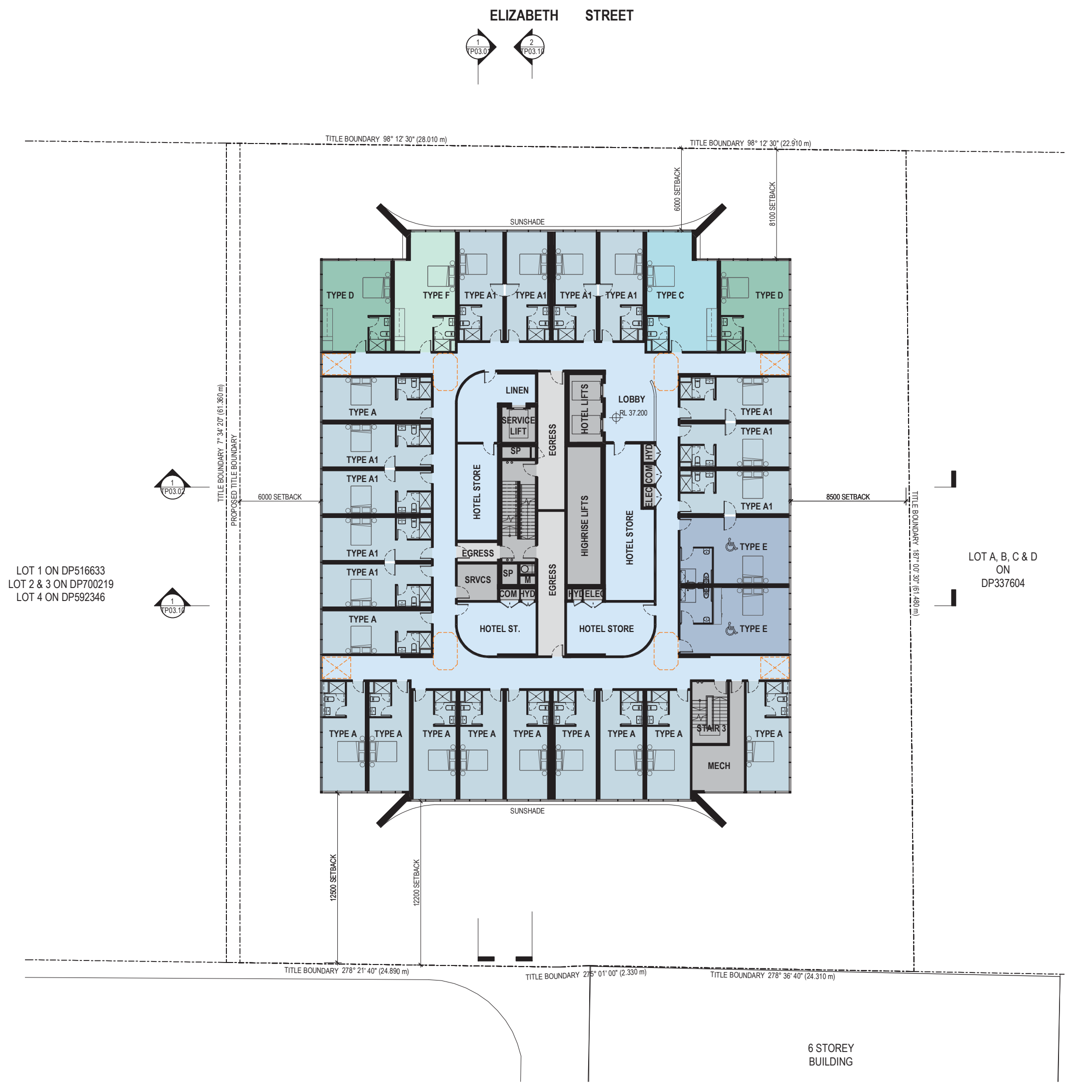

PRELIMINARY

Revisions

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P13	26.09.18	ISSUE FOR INFORMATION	MG
P14	04.10.18	ISSUE FOR INFORMATION	MG
P15	05.10.18	DRAFT DA	NE
P16	24.10.18	BACKGROUND ISSUE	MG

24/10/2018 5:17:57 PM

ABBREVIATIONS LEGEND

COM	COMMUNICATIONS SERVICES
CM	CONVEX MIRROR
EL	ELECTRICAL SERVICES
ELEC	ELECTRICAL SERVICES
EOT	END OF TRIP FACILITIES
EX	FIRE EXTINGUISHER
FHR	FIRE HOSE REEL
HY	HYDRAULIC RISERS
HYD	HYDRAULIC SERVICES
IC	INTERCOM / CARD READER
M	MECHANICAL RISERS
MECH	MECHANICAL SERVICES
M	MECHANICAL RISERS
MECH	MECHANICAL SERVICES
MC	MOTORCYCLE PARK
OSD	ON SITE DETENTION
RF	REFUSE CHUTE
ST	STORE
SP	STAIR PRESSURISATION
VD	VEHICLE DETECTOR IN SLAB
WL	VEHICLE WARNING LIGHT

COLOUR FILL LEGEND

COMMERCIAL

RESIDENTIAL

HOTEL

Project: **ELIZABETH STREET**

26 ELIZABETH STREET
LIVERPOOL

Drawing: **LEVEL 6 PLAN**

Project No: **218004**

Date: **14/09/18**

Author: **MG**

Scale: @ A1: **1 : 200**

Drawing No.: **TP01.10 P16**

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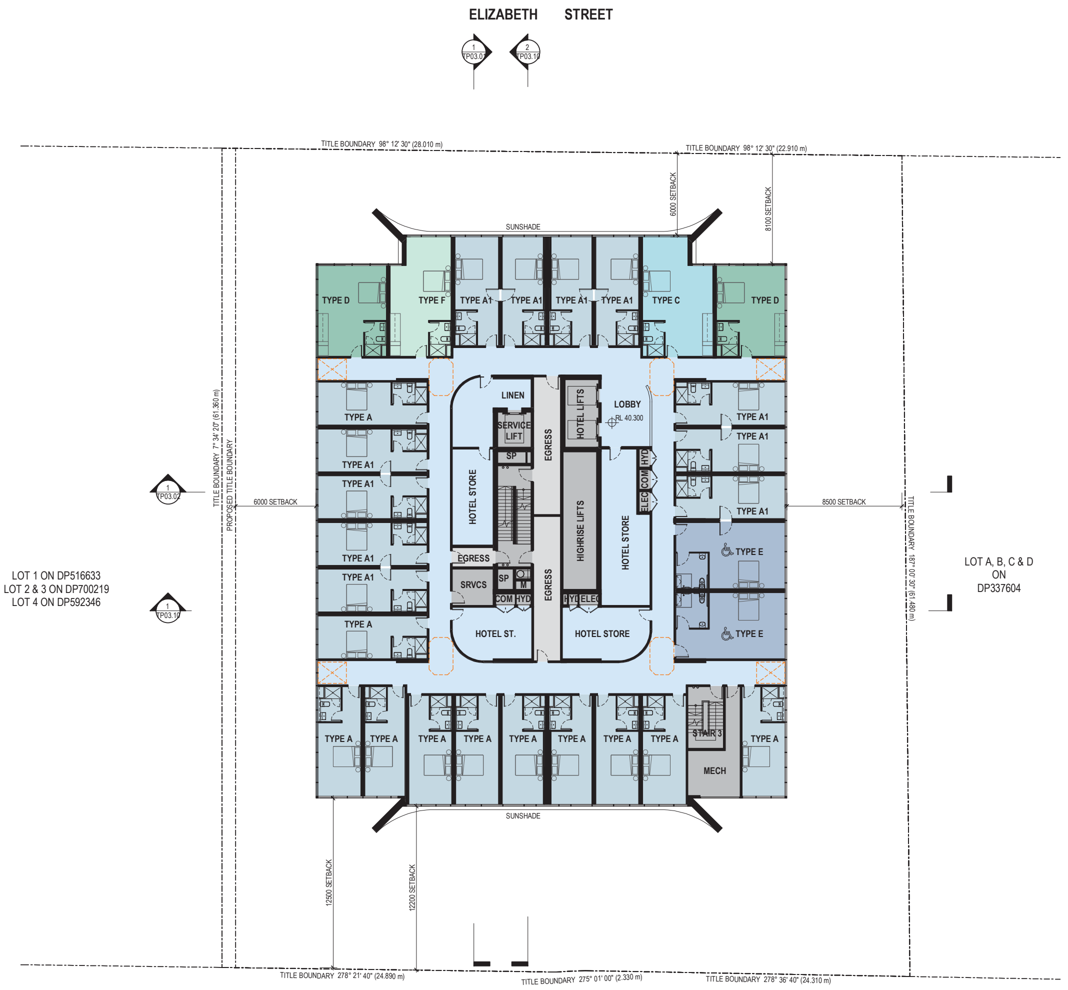

PRELIMINARY

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P13	26.09.18	ISSUE FOR INFORMATION	MG
P14	04.10.18	ISSUE FOR INFORMATION	MG
P15	05.10.18	DRAFT DA	NE
P16	24.10.18	BACKGROUND ISSUE	MG

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ABBREVIATIONS LEGEND

COM	COMMUNICATIONS SERVICES
CM	CONVEX MIRROR
EL	ELECTRICAL SERVICES
ELEC	ELECTRICAL SERVICES
EOT	END OF TRIP FACILITIES
EX	FIRE EXTINGUISHER
FHR	FIRE HOSE REEL
HY	HYDRAULIC RISERS
HYD	HYDRAULIC SERVICES
IC	INTERCOM / CARD READER
M	MECHANICAL RISERS
MECH	MECHANICAL SERVICES
M	MECHANICAL RISERS
MECH	MECHANICAL SERVICES
MC	MOTORCYCLE PARK
OSD	ON SITE DETENTION
RF	REFUSE CHUTE
ST	STORE
SP	STAIR PRESSURISATION
VD	VEHICLE DETECTOR IN SLAB
WL	VEHICLE WARNING LIGHT

COLOUR FILL LEGEND

COMMERCIAL

RESIDENTIAL

HOTEL

Project: **ELIZABETH STREET**

26 ELIZABETH STREET
LIVERPOOL

Drawing: **LEVEL 7 PLAN**

Project No: **218004**

Date: **14/09/18**

Author: **MG**

Scale: @ A1: **1 : 200**

Drawing No.: **TP01.11 P16**

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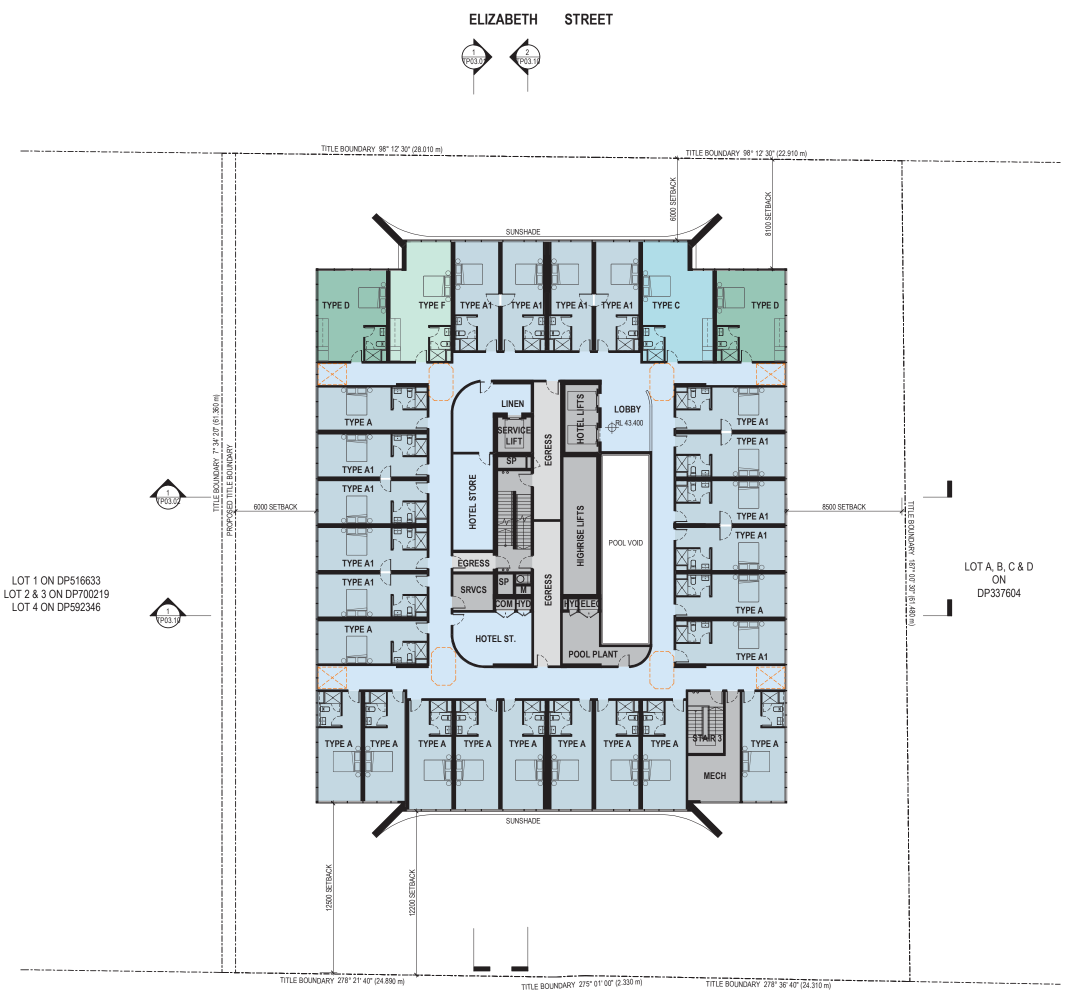

PRELIMINARY

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P9	26.09.18	ISSUE FOR INFORMATION	MG
P10	04.10.18	ISSUE FOR INFORMATION	MG
P11	05.10.18	DRAFT DA	NE
P12	24.10.18	BACKGROUND ISSUE	MG

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ABBREVIATIONS LEGEND

COM	COMMUNICATIONS SERVICES
CM	CONVEX MIRROR
EL	ELECTRICAL SERVICES
ELEC	ELECTRICAL SERVICES
EOT	END OF TRIP FACILITIES
EX	FIRE EXTINGUISHER
FHR	FIRE HOSE REEL
HY	HYDRAULIC RISERS
HYD	HYDRAULIC SERVICES
IC	INTERCOM / CARD READER
M	MECHANICAL RISERS
MECH	MECHANICAL SERVICES
M	MECHANICAL RISERS
MECH	MECHANICAL SERVICES
MC	MOTORCYCLE PARK
OSD	ON SITE DETENTION
RF	REFUSE CHUTE
ST	STORE
SP	STAIR PRESSURISATION
VD	VEHICLE DETECTOR IN SLAB
WL	VEHICLE WARNING LIGHT

COLOUR FILL LEGEND

COMMERCIAL

RESIDENTIAL

HOTEL

Project: **ELIZABETH STREET**

Drawing: **LEVEL 8 PLAN**

Project No: **218004**

Date: **14/09/18**

Author: **MG**

Scale: @ A1: **1 : 200**

Drawing No.: **TP01.12 P12**

26 ELIZABETH STREET
LIVERPOOL

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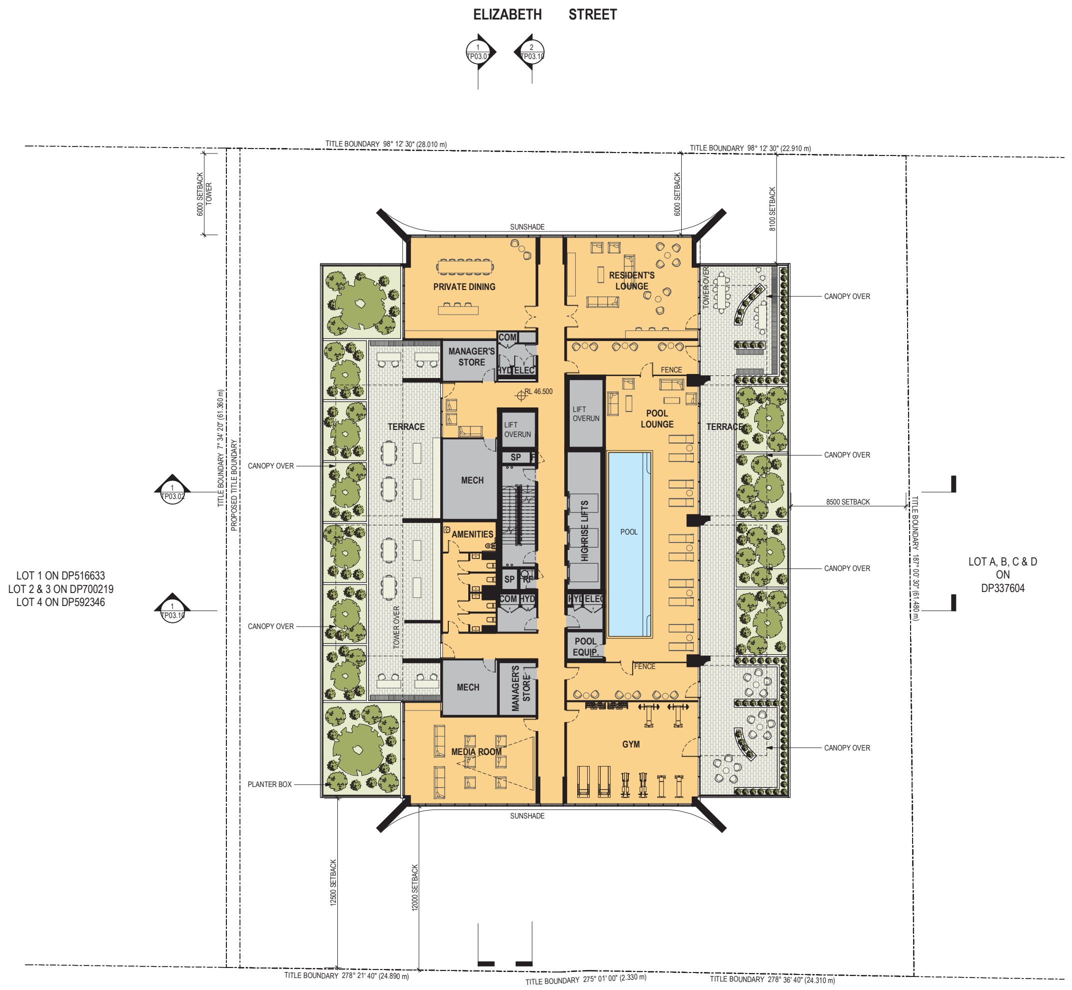

PRELIMINARY

Revisions

P14	20.09.18	ISSUE FOR INFORMATION	MG
P15	26.09.18	ISSUE FOR INFORMATION	MG
P16	04.10.18	ISSUE FOR INFORMATION	MG
P17	05.10.18	DRAFT DA	NE
P18	24.10.18	BACKGROUND ISSUE	MG

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ABBREVIATIONS LEGEND

COM	COMMUNICATIONS SERVICES
CM	CONVEX MIRROR
EL	ELECTRICAL SERVICES
ELEC	ELECTRICAL SERVICES
EOT	END OF TRIP FACILITIES
EX	FIRE EXTINGUISHER
FHR	FIRE HOSE REEL
HY	HYDRAULIC RISERS
HYD	HYDRAULIC SERVICES
IC	INTERCOM / CARD READER
M	MECHANICAL RISERS
MECH	MECHANICAL SERVICES
M	MECHANICAL RISERS
MECH	MECHANICAL SERVICES
MC	MOTORCYCLE PARK
OSD	ON SITE DETENTION
RF	REFUSE CHUTE
ST	STORE
SP	STAIR PRESSURISATION
VD	VEHICLE DETECTOR IN SLAB
WL	VEHICLE WARNING LIGHT

COLOUR FILL LEGEND

COMMERCIAL
RESIDENTIAL
HOTEL

Project: **ELIZABETH STREET**

26 ELIZABETH STREET
LIVERPOOL

Drawing: **LEVEL 9 PLAN**

Project No: **218004**

Date: **14/09/18**

Author: **MG**

Scale: @ A1: **1 : 200**

Drawing No.: **TP01.13 P18**

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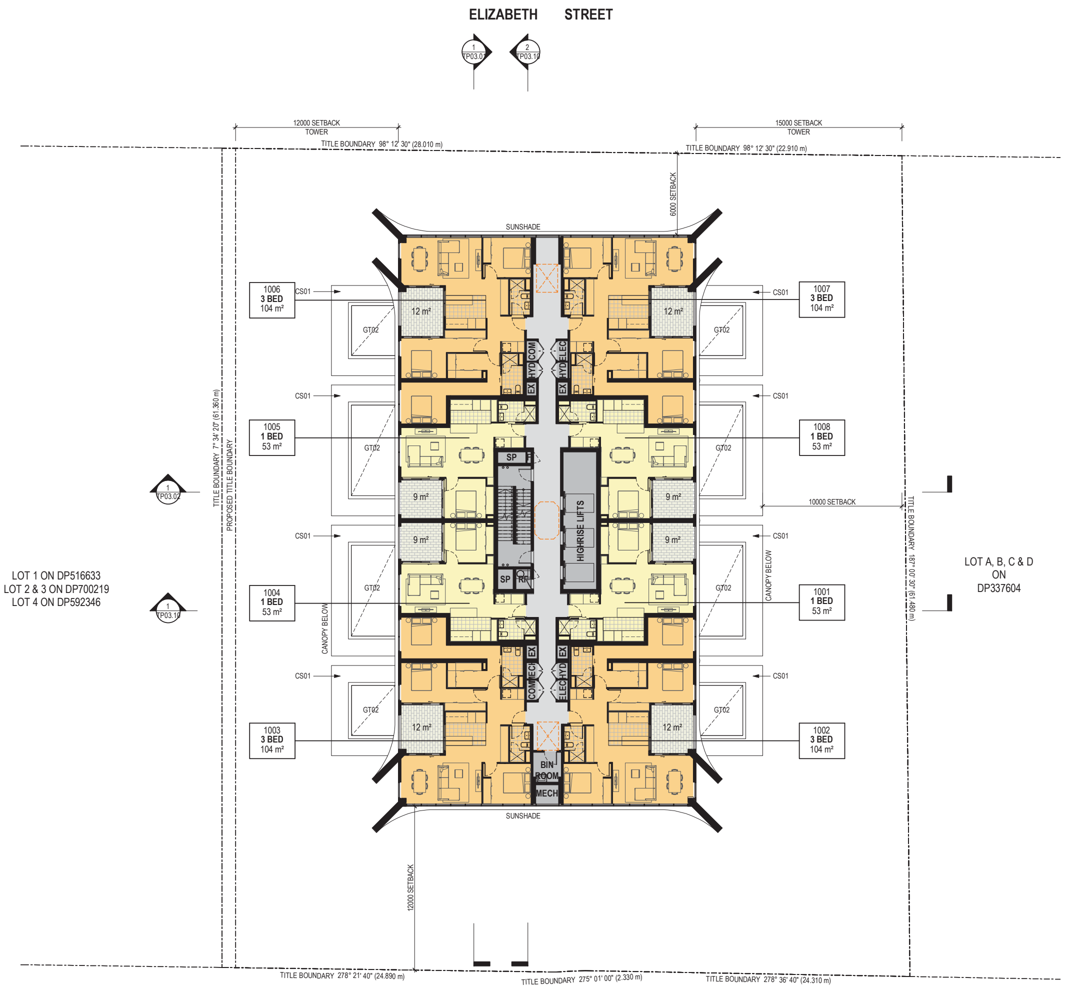

PRELIMINARY

Revisions

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P11	26.09.18	ISSUE FOR INFORMATION	MG
P12	04.10.18	ISSUE FOR INFORMATION	MG
P13	05.10.18	DRAFT DA	NE
P14	24.10.18	BACKGROUND ISSUE	MG

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ABBREVIATIONS LEGEND

COM	COMMUNICATIONS SERVICES
CM	CONVEX MIRROR
EL	ELECTRICAL SERVICES
ELEC	ELECTRICAL SERVICES
EOT	END OF TRIP FACILITIES
EX	FIRE EXTINGUISHER
FHR	FIRE HOSE REEL
HY	HYDRAULIC RISERS
HYD	HYDRAULIC SERVICES
IC	INTERCOM / CARD READER
M	MECHANICAL RISERS
MECH	MECHANICAL SERVICES
M	MECHANICAL RISERS
MECH	MECHANICAL SERVICES
MC	MOTORCYCLE PARK
OSD	ON SITE DETENTION
RF	REFUSE CHUTE
ST	STORE
SP	STAIR PRESSURISATION
VD	VEHICLE DETECTOR IN SLAB
WL	VEHICLE WARNING LIGHT

COLOUR FILL LEGEND

COMMERCIAL

RESIDENTIAL

HOTEL

Project: **ELIZABETH STREET**

26 ELIZABETH STREET
LIVERPOOL

Drawing: **LEVEL 10 PLAN**

Project No: **218004**

Date: **14/09/18**

Author: **YY**

Scale: @ A1: **1 : 200**

Drawing No.: **TP01.14 P14**

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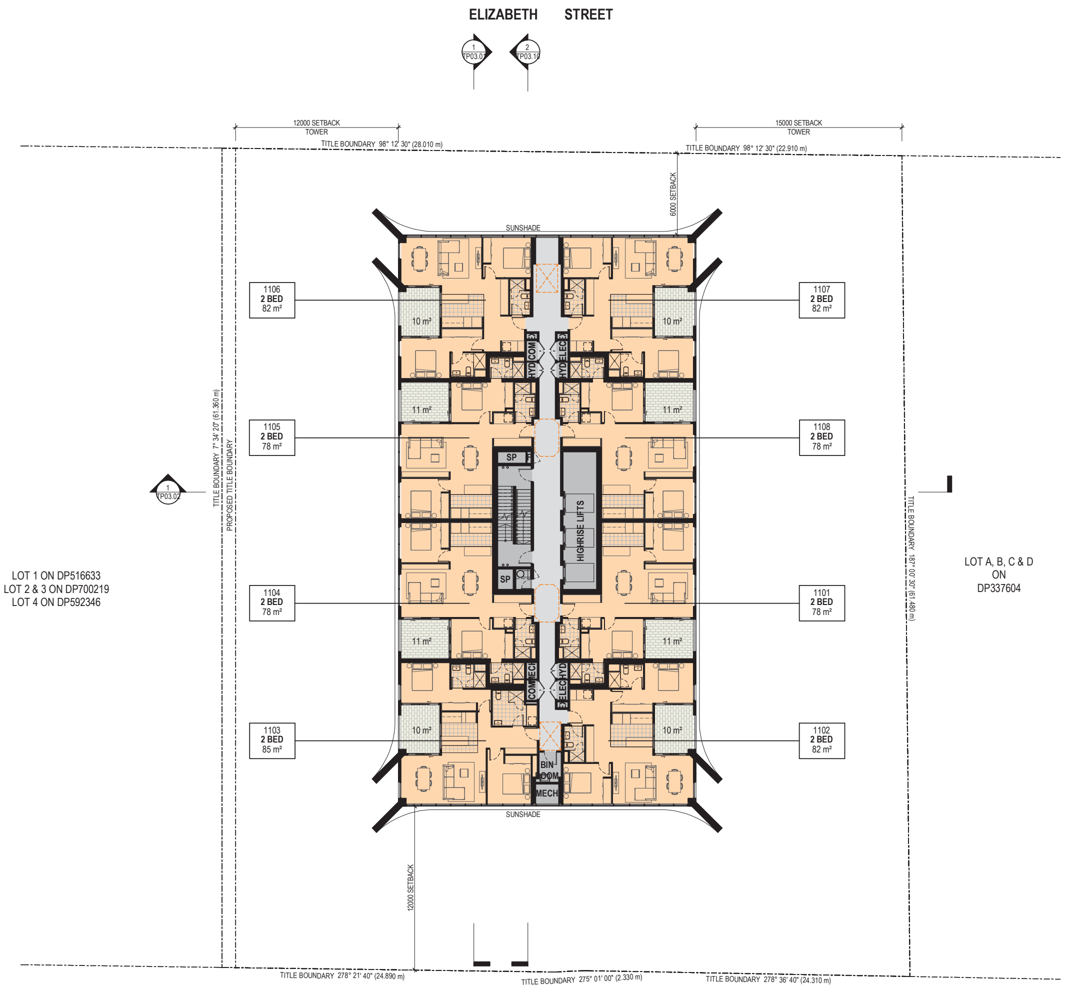

NOTE: ROOM NUMBERS FOR LEVEL 11 SHOWN

PRELIMINARY

Revisions

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P9	26.09.18	ISSUE FOR INFORMATION	MG
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ABBREVIATIONS LEGEND

COM	COMMUNICATIONS SERVICES
CM	CONVEX MIRROR
EL	ELECTRICAL SERVICES
ELEC	ELECTRICAL SERVICES
EOT	END OF TRIP FACILITIES
EX	FIRE EXTINGUISHER
FHR	FIRE HOSE REEL
HY	HYDRAULIC RISERS
HYD	HYDRAULIC SERVICES
IC	INTERCOM / CARD READER
M	MECHANICAL RISERS
MECH	MECHANICAL SERVICES
M	MECHANICAL RISERS
MECH	MECHANICAL SERVICES
MC	MOTORCYCLE PARK
OSD	ON SITE DETENTION
RF	REFUSE CHUTE
ST	STORE
SP	STAIR PRESSURISATION
VD	VEHICLE DETECTOR IN SLAB
WL	VEHICLE WARNING LIGHT

COLOUR FILL LEGEND

- 1 BED
- 2 BED
- 3 BED
- 4 BED

Project: **ELIZABETH STREET**

26 ELIZABETH STREET
LIVERPOOL

Drawing: **LEVEL 11-14, 16-19, 21-24, 26-29, 31 PLANS**

Project No: **218004**

Date: **14/09/18**

Author: **YY**

Scale: @ A1: **1 : 200**

Drawing No.: **TP01.15 P12**

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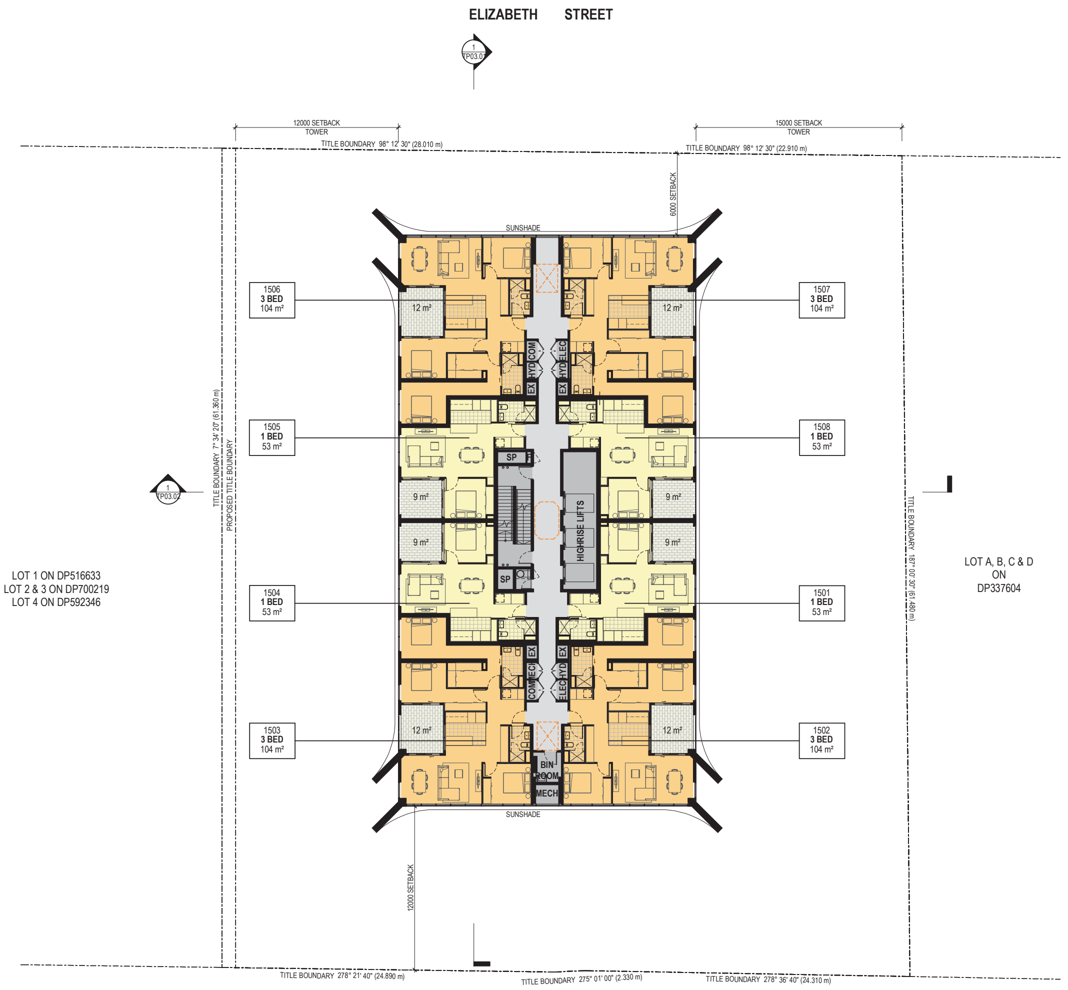

NOTE: ROOM NUMBERS FOR LEVEL 15 SHOWN

PRELIMINARY

Revisions

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P13	26.09.18	ISSUE FOR INFORMATION	MG
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P15	05.10.18	DRAFT DA	NE
P16	24.10.18	BACKGROUND ISSUE	MG

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ABBREVIATIONS LEGEND

COM	COMMUNICATIONS SERVICES
CM	CONVEX MIRROR
EL	ELECTRICAL SERVICES
ELEC	ELECTRICAL SERVICES
EOT	END OF TRIP FACILITIES
EX	FIRE EXTINGUISHER
FHR	FIRE HOSE REEL
HY	HYDRAULIC RISERS
HYD	HYDRAULIC SERVICES
IC	INTERCOM / CARD READER
M	MECHANICAL RISERS
MECH	MECHANICAL SERVICES
M	MECHANICAL RISERS
MECH	MECHANICAL SERVICES
MC	MOTORCYCLE PARK
OSD	ON SITE DETENTION
RF	REFUSE CHUTE
ST	STORE
SP	STAIR PRESSURISATION
VD	VEHICLE DETECTOR IN SLAB
WL	VEHICLE WARNING LIGHT

COLOUR FILL LEGEND

1 BED
2 BED
3 BED
4 BED

Project: **ELIZABETH STREET**

26 ELIZABETH STREET
LIVERPOOL

Drawing: **LEVEL 15, 20, 25, 30 PLAN**

Project No: **218004**

Date: **14/09/18**

Author: **YY**

Scale: @ A1: **1 : 200**

Drawing No.: **TP01.16 P16**

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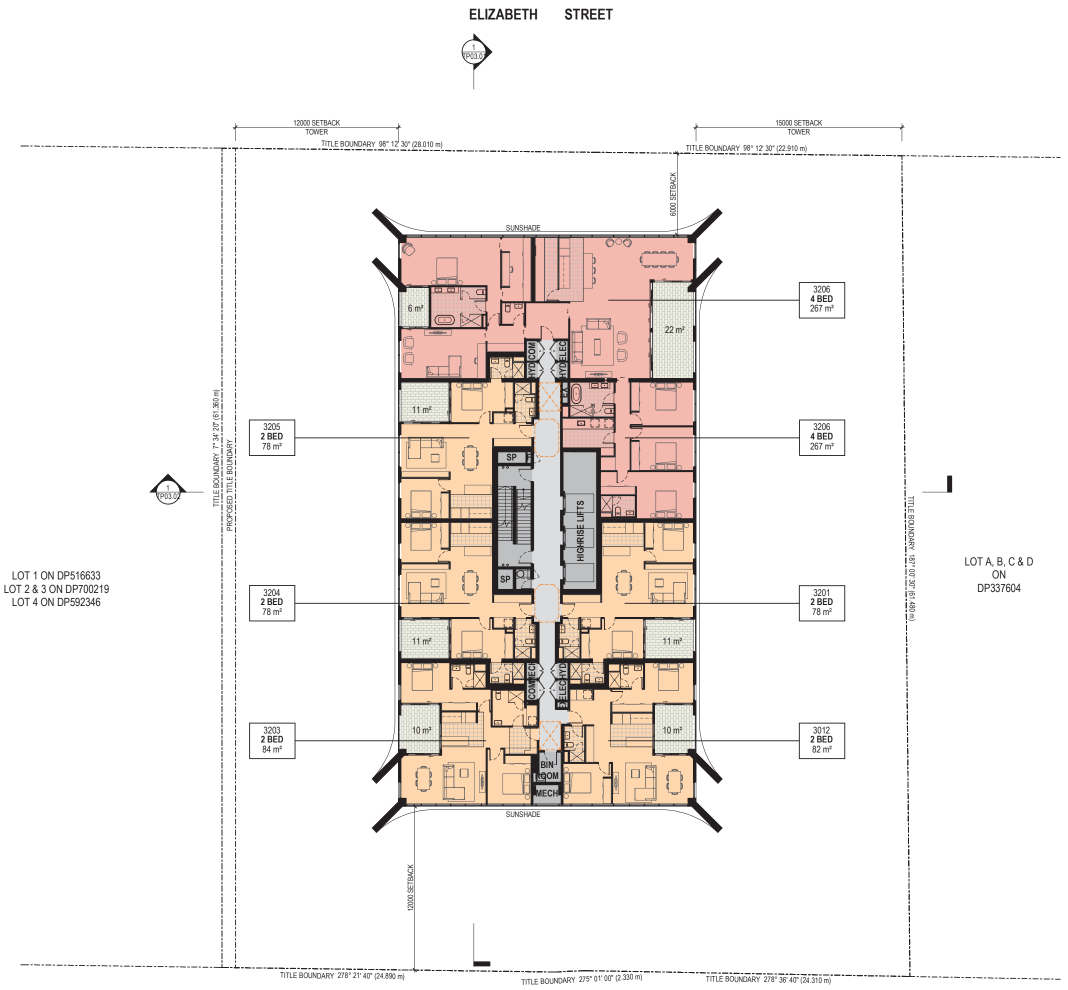

NOTE: ROOM NUMBERS FOR LEVEL 32 SHOWN

PRELIMINARY

Revisions

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P10	04.10.18	ISSUE FOR INFORMATION	MG
P11	05.10.18	DRAFT DA	NE
P12	24.10.18	BACKGROUND ISSUE	MG

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ABBREVIATIONS LEGEND

COM	COMMUNICATIONS SERVICES
CM	CONVEX MIRROR
EL	ELECTRICAL SERVICES
ELEC	ELECTRICAL SERVICES
EOT	END OF TRIP FACILITIES
EX	FIRE EXTINGUISHER
FHR	FIRE HOSE REEL
HY	HYDRAULIC RISERS
HYD	HYDRAULIC SERVICES
IC	INTERCOM / CARD READER
M	MECHANICAL RISERS
MECH	MECHANICAL SERVICES
M	MECHANICAL RISERS
MECH	MECHANICAL SERVICES
MC	MOTORCYCLE PARK
OSD	ON SITE DETENTION
RF	REFUSE CHUTE
ST	STORE
SP	STAIR PRESSURISATION
VD	VEHICLE DETECTOR IN SLAB
WL	VEHICLE WARNING LIGHT

COLOUR FILL LEGEND

1 BED
2 BED
3 BED
4 BED

Project ELIZABETH STREET

Drawing LEVEL 32-34 PLANS

Project No 218004

Date 14/09/18

Author YY

Scale: @ A1 1 : 200

Drawing No. TP01.18 P12

26 ELIZABETH STREET
LIVERPOOL

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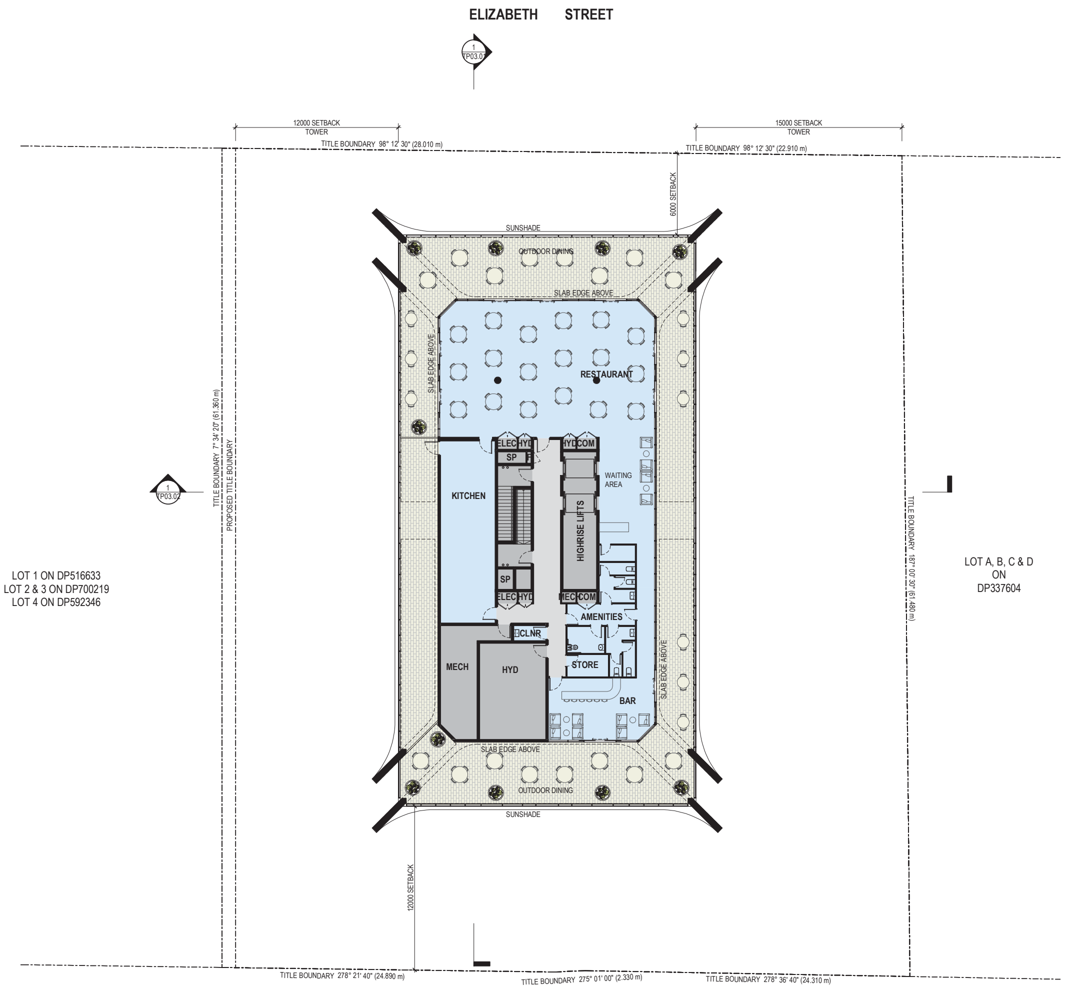

PRELIMINARY

Revisions

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P15	26.09.18	ISSUE FOR INFORMATION	MG
P16	04.10.18	ISSUE FOR INFORMATION	MG
P17	05.10.18	DRAFT DA	NE
P18	24.10.18	BACKGROUND ISSUE	MG

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ABBREVIATIONS LEGEND

COM	COMMUNICATIONS SERVICES	M	MECHANICAL RISERS
CM	CONVEX MIRROR	MECH	MECHANICAL SERVICES
EL	ELECTRICAL SERVICES	MC	MOTORCYCLE PARK
ELEC	ELECTRICAL SERVICES	OSD	ON SITE DETENTION
EOT	END OF TRIP FACILITIES	RF	REFUSE CHUTE
EX	FIRE EXTINGUISHER	ST	STORE
FHR	FIRE HOSE REEL	SP	STAIR PRESSURISATION
HY	HYDRAULIC RISERS	VD	VEHICLE DETECTOR IN SLAB
HYD	HYDRAULIC SERVICES	WL	VEHICLE WARNING LIGHT
IC	INTERCOM / CARD READER		
M	MECHANICAL RISERS		
MECH	MECHANICAL SERVICES		

COLOUR FILL LEGEND

COMMERCIAL
RESIDENTIAL
HOTEL

Project **ELIZABETH STREET**
26 ELIZABETH STREET
LIVERPOOL

Drawing **LEVEL 35 PLAN**

Project No **218004**

Date **14/09/18**

Author **MG**

Scale: @ A1 **1 : 200**

Drawing No. **TP01.40 P18**

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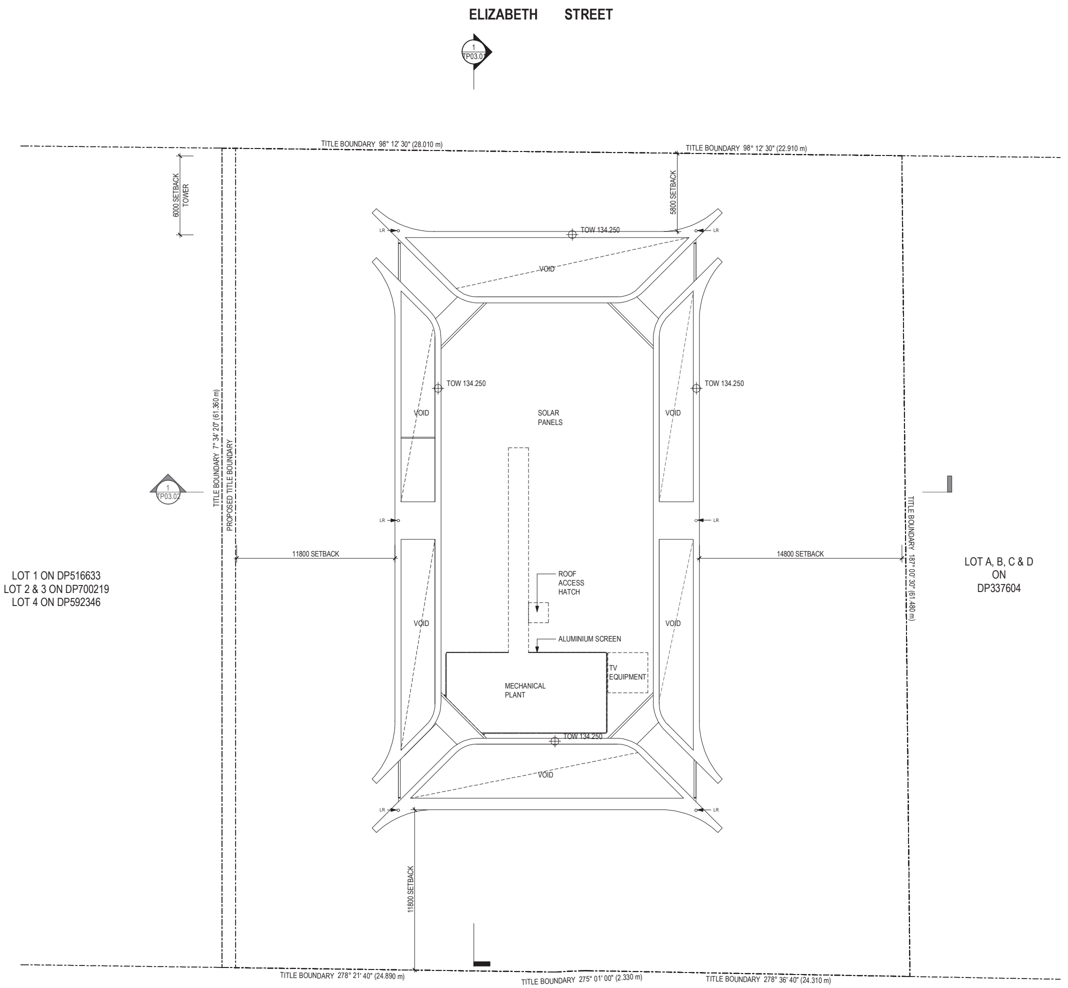

PRELIMINARY

Revisions

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P10	26.09.18	ISSUE FOR INFORMATION	MG
P11	04.10.18	ISSUE FOR INFORMATION	MG
P12	05.10.18	DRAFT DA	NE
P13	24.10.18	BACKGROUND ISSUE	MG

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ABBREVIATIONS LEGEND

COM	COMMUNICATIONS SERVICES
CM	CONVEX MIRROR
EL	ELECTRICAL SERVICES
ELEC	ELECTRICAL SERVICES
EOT	END OF TRIP FACILITIES
EX	FIRE EXTINGUISHER
FHR	FIRE HOSE REEL
HY	HYDRAULIC RISERS
HYD	HYDRAULIC SERVICES
IC	INTERCOM / CARD READER
M	MECHANICAL RISERS
MECH	MECHANICAL SERVICES
M	MECHANICAL RISERS
MECH	MECHANICAL SERVICES
MC	MOTORCYCLE PARK
OSD	ON SITE DETENTION
RF	REFUSE CHUTE
ST	STORE
SP	STAIR PRESSURISATION
VD	VEHICLE DETECTOR IN SLAB
WL	VEHICLE WARNING LIGHT

COLOUR FILL LEGEND

COMMERCIAL

RESIDENTIAL

HOTEL

Project: **ELIZABETH STREET**

26 ELIZABETH STREET
LIVERPOOL

Drawing: **ROOF PLAN**

Project No: **218004**

Date: **14/09/18**

Author: **MG**

Scale: @ A1: **1 : 200**

Drawing No.: **TP01.41 P13**

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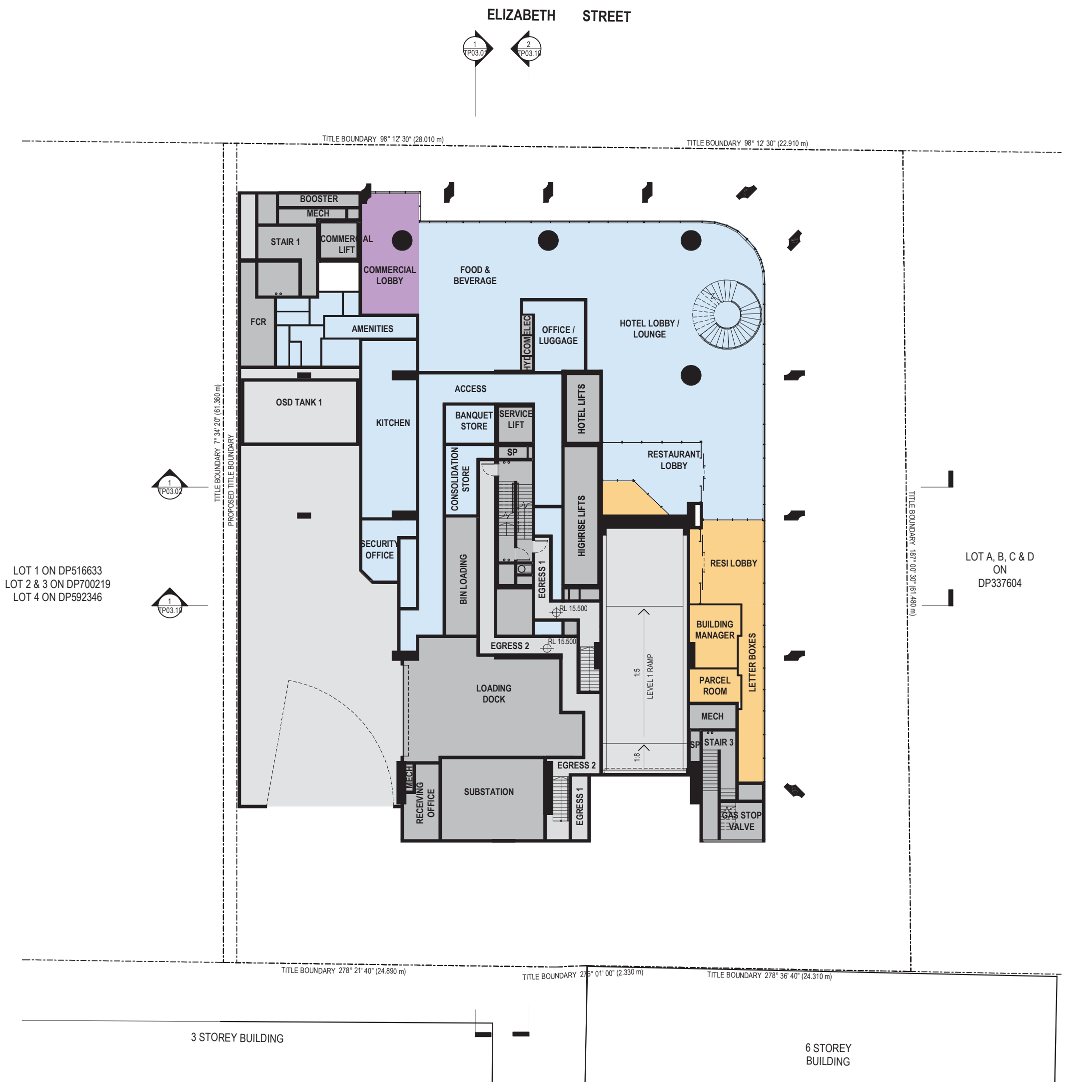

PRELIMINARY

Revisions

P1	05.10.18	DRAFT DA	NE
P2	24.10.18	BACKGROUND ISSUE	MG

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ABBREVIATIONS LEGEND

COM	COMMUNICATIONS SERVICES
CM	CONVEX MIRROR
EL	ELECTRICAL SERVICES
ELEC	ELECTRICAL SERVICES
EOT	END OF TRIP FACILITIES
EX	FIRE EXTINGUISHER
FHR	FIRE HOSE REEL
HY	HYDRAULIC RISERS
HYD	HYDRAULIC SERVICES
IC	INTERCOM / CARD READER
M	MECHANICAL RISERS
MECH	MECHANICAL SERVICES
M	MECHANICAL RISERS
MECH	MECHANICAL SERVICES
MC	MOTORCYCLE PARK
OSD	ON SITE DETENTION
RF	REFUSE CHUTE
ST	STORE
SP	STAIR PRESSURISATION
VD	VEHICLE DETECTOR IN SLAB
WL	VEHICLE WARNING LIGHT

COLOUR FILL LEGEND

COMMERCIAL

RESIDENTIAL

HOTEL

Project: **ELIZABETH STREET**

26 ELIZABETH STREET
LIVERPOOL

Drawing: **GROUND FLOOR MEZZANINE**

Project No: **218004**

Date: **14/09/18**

Author: **MG**

Scale: @ A1: **1 : 200**

Drawing No.: **TP01.50 P2**

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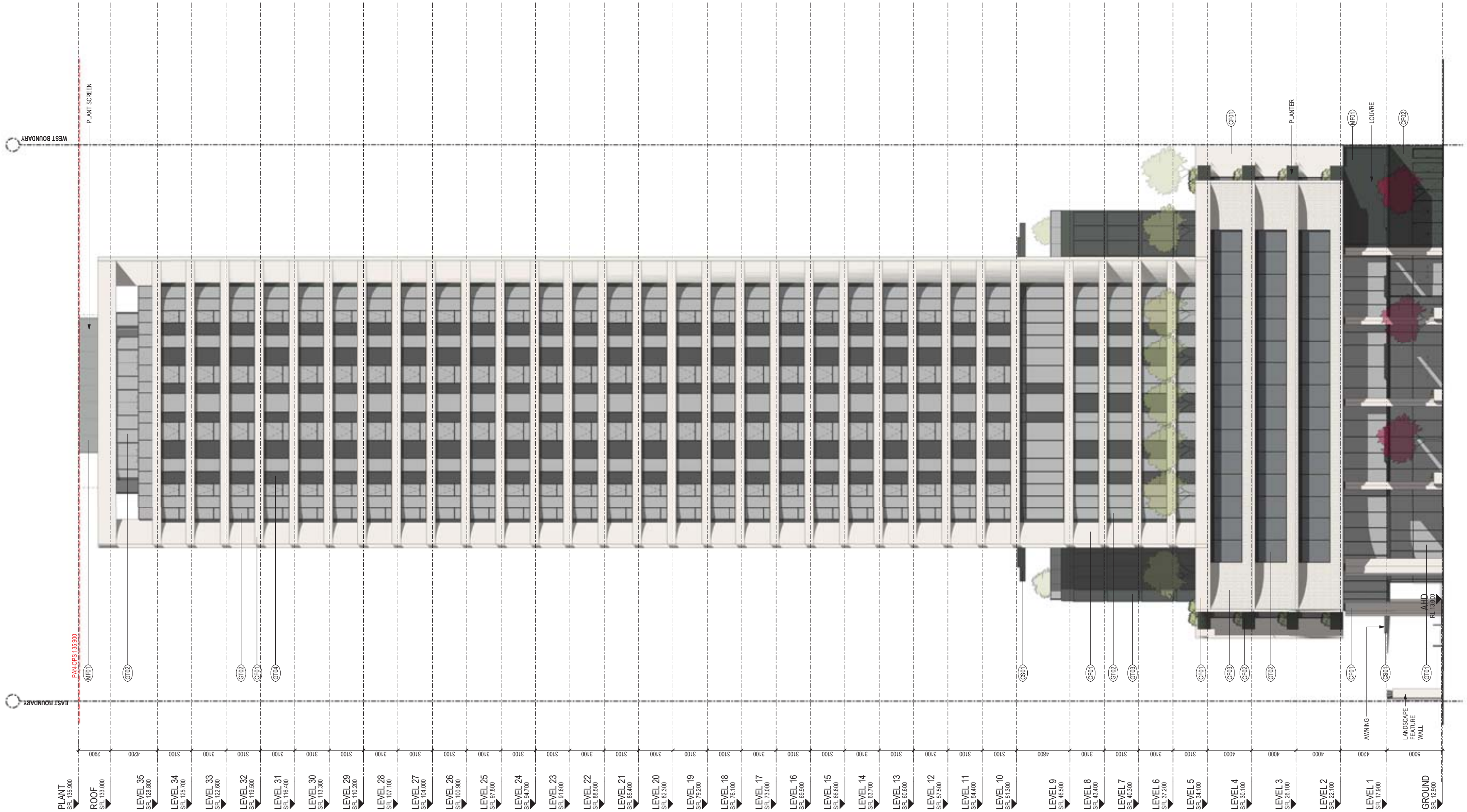

PRELIMINARY

Revisions

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P6	04.10.18	ISSUE FOR INFORMATION	MG
P7	05.10.18	DRAFT DA	NE
P8	24.10.18	BACKGROUND ISSUE	MG

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MATERIAL LEGEND

CF01	Cementious Finish - White
CF02	Cementious Finish - Charcoal
CF03	Profiled Cementious Finish - White
CS01	Prefinished Cladding / Powdercoated Window Frame Finish
GT01	Glazing - Shopfront
GT02	Glazing - Grey Tint
GT03	Glazing - Dark Grey Tint
GT04	Glazing - Colour Back Glass
MF01	Metal Finish - Charcoal

Project: **ELIZABETH STREET**

Drawing: **NORTH ELEVATION**

Project No: **218004**

Date: **14/09/18**

Author: **YY**

Scale: @ A1: **1 : 200**

Drawing No.: **TP02.01 P8**

26 ELIZABETH STREET
LIVERPOOL

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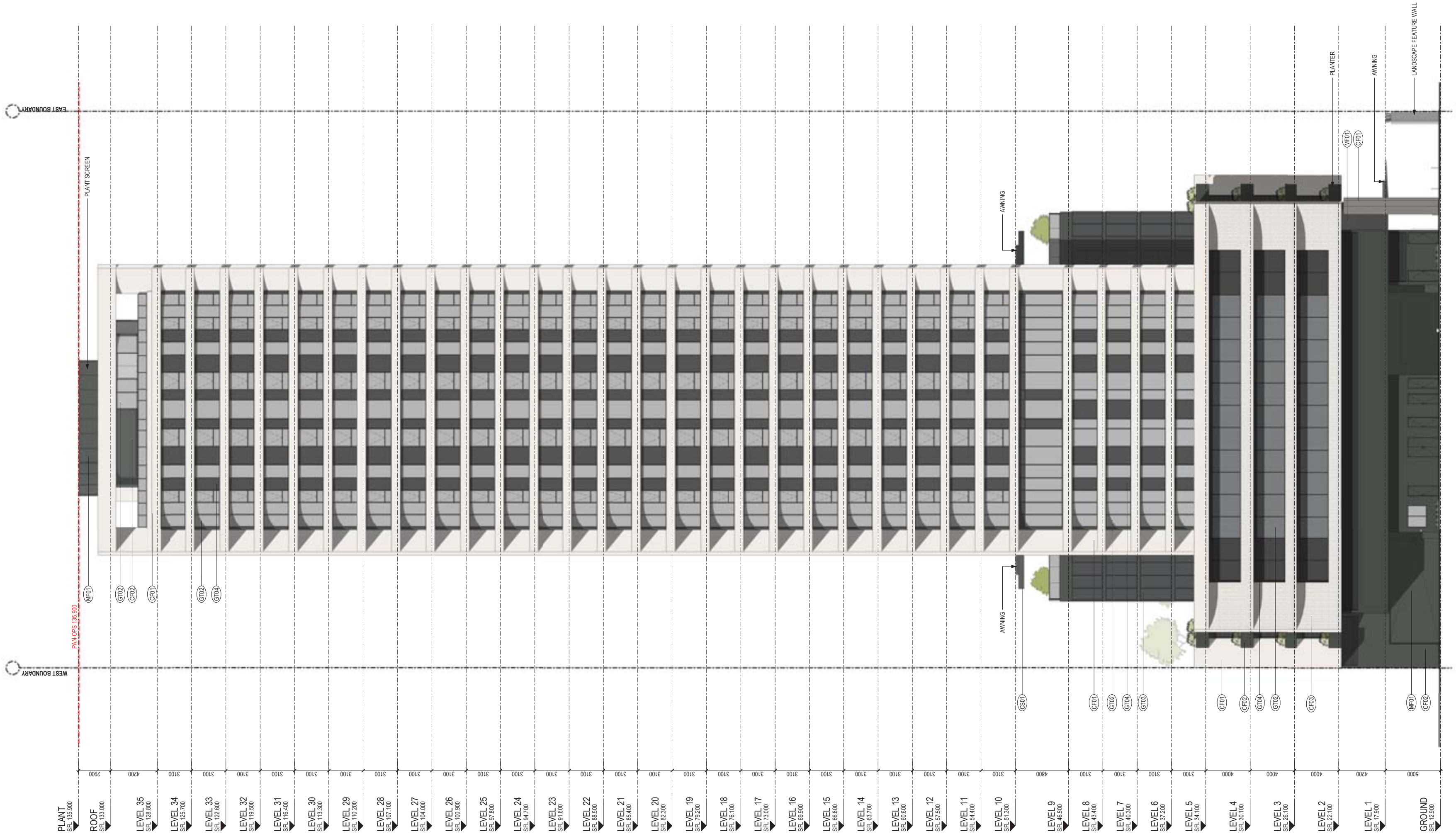

PRELIMINARY

Revisions

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P5	26.09.18	ISSUE FOR INFORMATION	MG
P6	04.10.18	ISSUE FOR INFORMATION	MG
P7	05.10.18	DRAFT DA	NE
P8	24.10.18	BACKGROUND ISSUE	MG

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MATERIAL LEGEND

CF01	Cementious Finish - White
CF02	Cementious Finish - Charcoal
CF03	Profiled Cementious Finish - White
CS01	Prefinished Cladding / Powdercoated Window Frame Finish
GT01	Glazing - Shopfront
GT02	Glazing - Grey Tint
GT03	Glazing - Dark Grey Tint
GT04	Glazing - Colour Back Glass
MF01	Metal Finish - Charcoal

Project **ELIZABETH STREET**

26 ELIZABETH STREET
LIVERPOOL

Drawing **SOUTH ELEVATION**

Project No **218004**

Date **14/09/18**

Author **YY**

Scale: @ A1 **1 : 200**

Drawing No. **TP02.02 P8**

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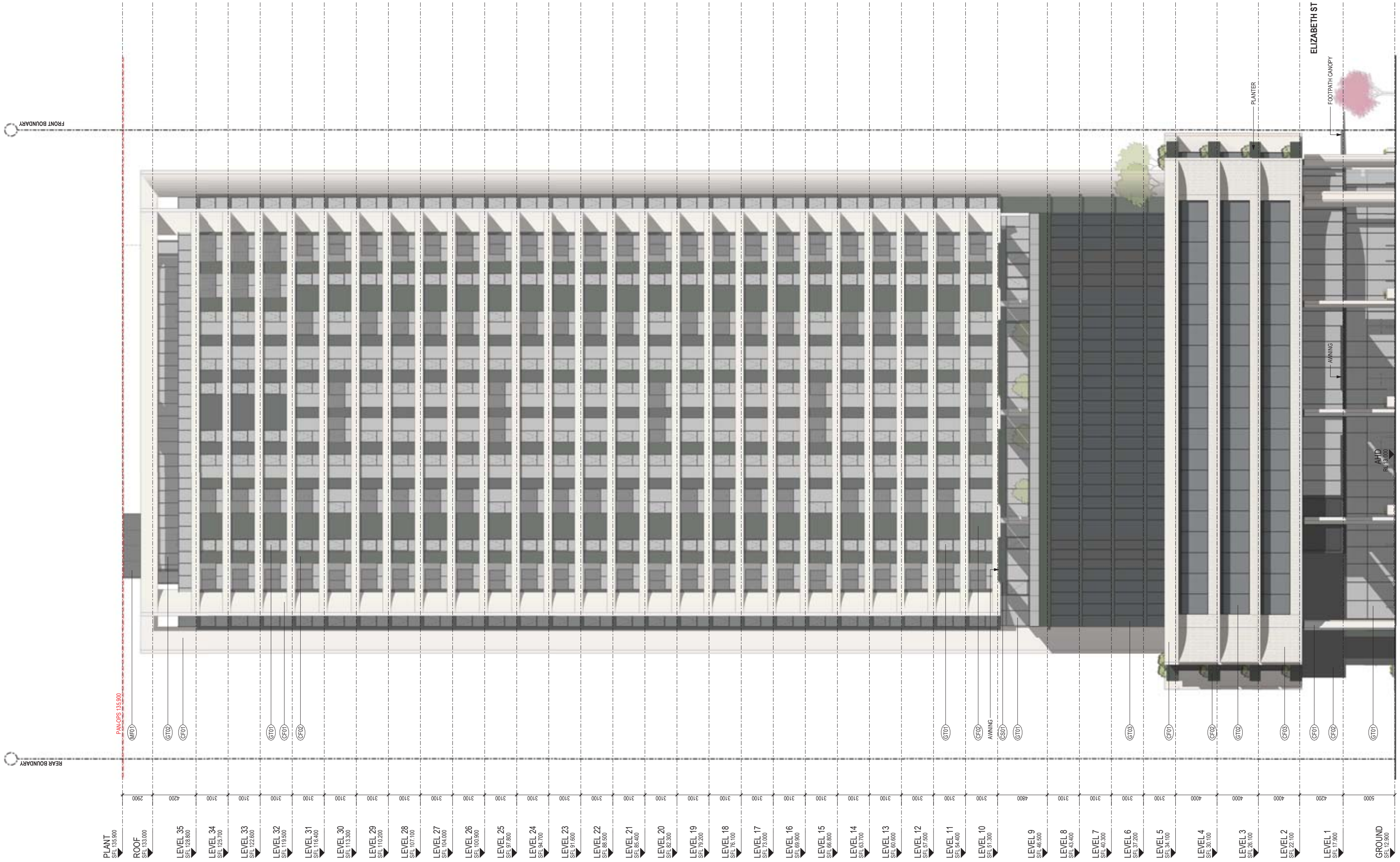

PRELIMINARY

Revisions

P4	10.09.18	BACKGROUND ISSUE	NE
P5	26.09.18	ISSUE FOR INFORMATION	MG
P6	04.10.18	ISSUE FOR INFORMATION	MG
P7	05.10.18	DRAFT DA	NE
P8	24.10.18	BACKGROUND ISSUE	MG

24/10/2018 5:21:34 PM

MATERIAL LEGEND

CF01	Cementious Finish - White
CF02	Cementious Finish - Charcoal
CF03	Profiled Cementious Finish - White
CS01	Prefinished Cladding / Powdercoated Window Frame Finish
GT01	Glazing - Shopfront
GT02	Glazing - Grey Tint
GT03	Glazing - Dark Grey Tint
GT04	Glazing - Colour Back Glass
MF01	Metal Finish - Charcoal

Project **ELIZABETH STREET**

Drawing **EAST ELEVATION**

Project No **218004**

Date **14/09/18**

Author **YY**

Scale: @ A1 **1 : 200**

Drawing No. **TP02.03 P8**

26 ELIZABETH STREET
LIVERPOOL

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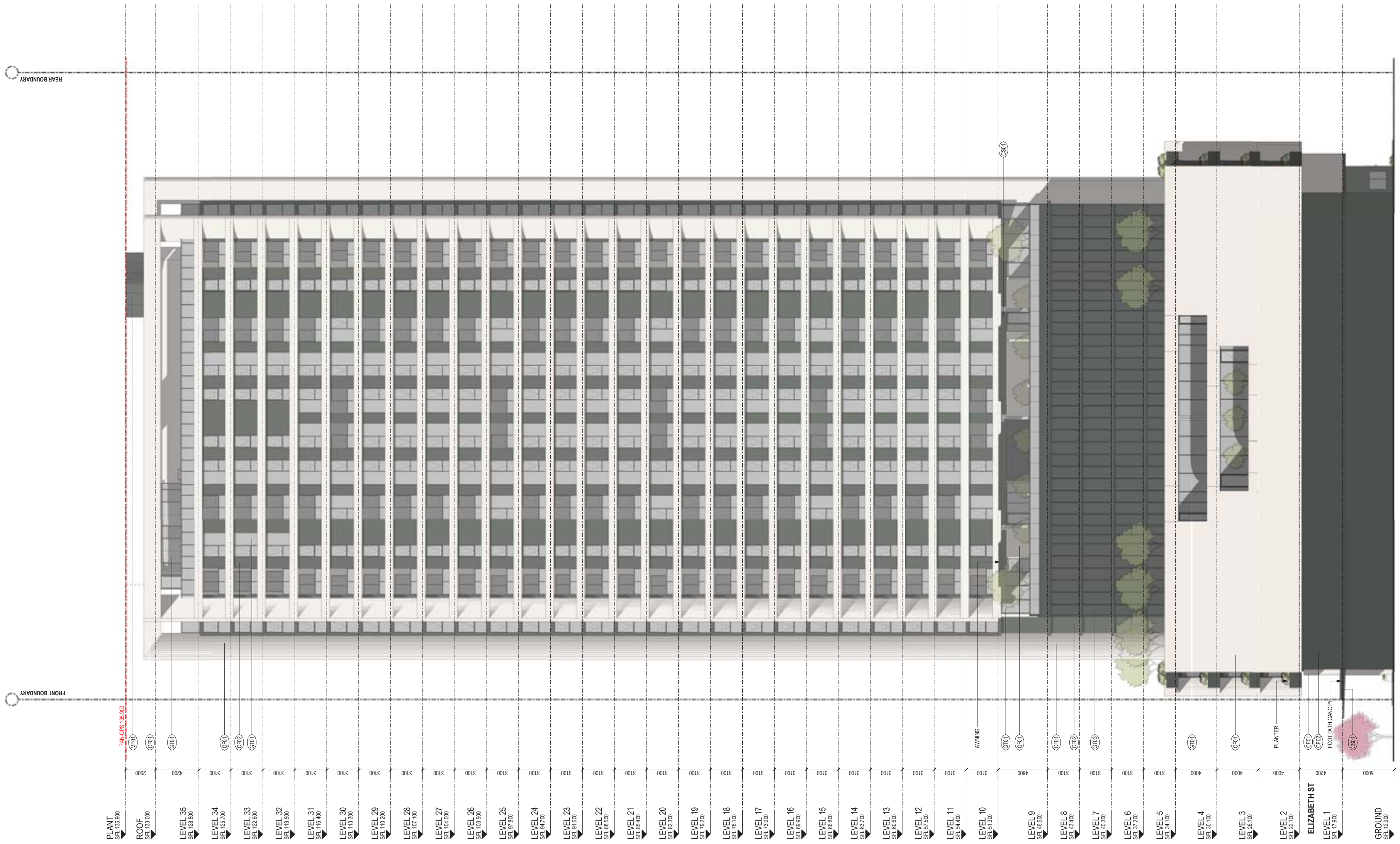

PRELIMINARY

Revisions

P4	10.09.18	BACKGROUND ISSUE	NE
P5	26.09.18	ISSUE FOR INFORMATION	MG
P6	04.10.18	ISSUE FOR INFORMATION	MG
P7	05.10.18	DRAFT DA	NE
P8	24.10.18	BACKGROUND ISSUE	MG

24/10/2018 5:22:27 PM

MATERIAL LEGEND

CF01	Cementious Finish - White
CF02	Cementious Finish - Charcoal
CF03	Profiled Cementious Finish - White
CS01	Prefinished Cladding / Powdercoated Window Frame Finish
GT01	Glazing - Shopfront
GT02	Glazing - Grey Tint
GT03	Glazing - Dark Grey Tint
GT04	Glazing - Colour Back Glass
MF01	Metal Finish - Charcoal

Project **ELIZABETH STREET**

26 ELIZABETH STREET
LIVERPOOL

Drawing **WEST ELEVATION**

Project No **218004**

Date **14/09/18**

Author **YY**

Scale: @ A1 **1 : 200**

Drawing No. **TP02.04 P8**

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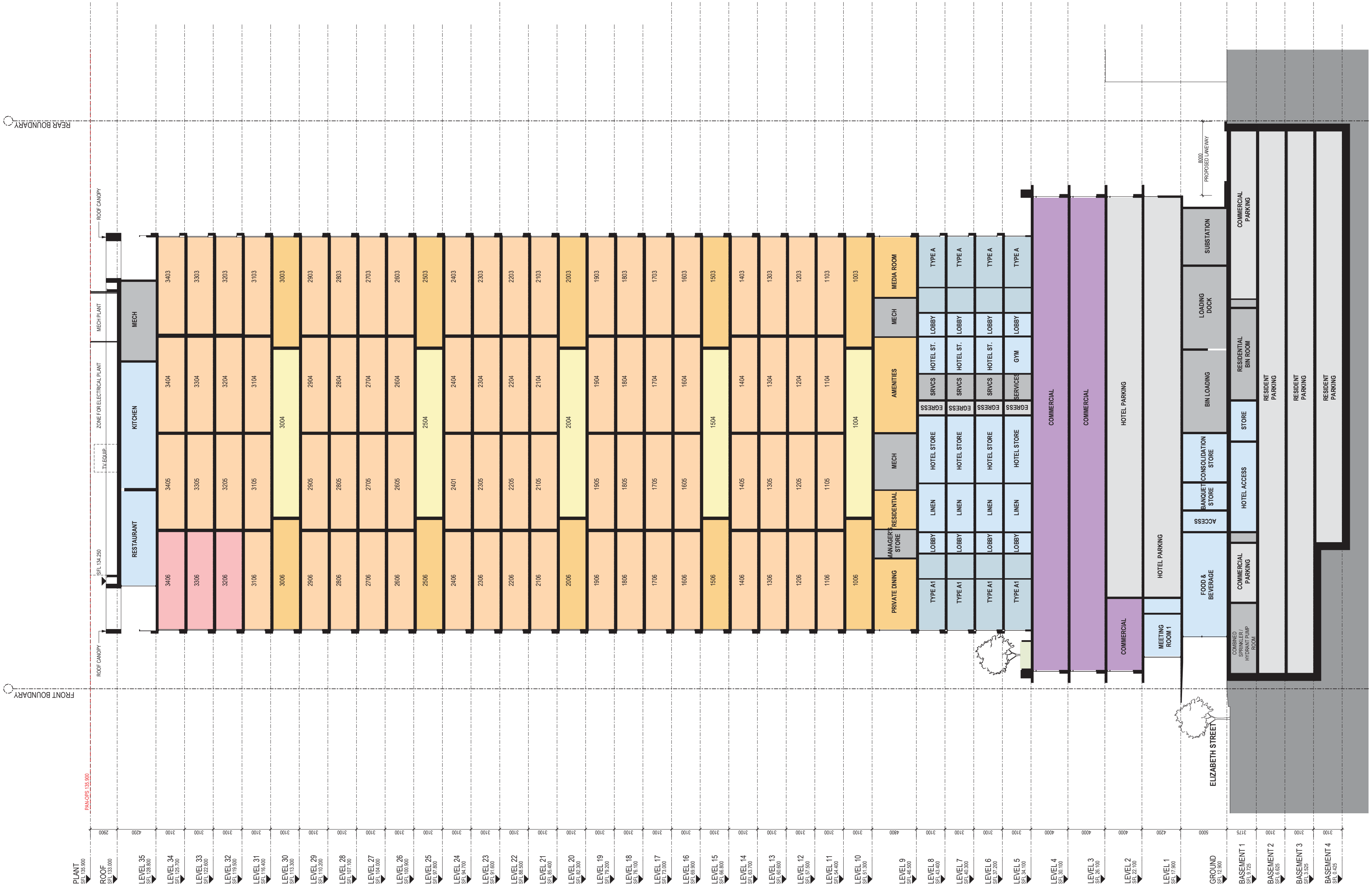

PRELIMINARY

Revisions

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P12	24.09.18	ISSUE FOR INFORMATION	MG
P13	04.10.18	ISSUE FOR INFORMATION	MG
P14	05.10.18	DRAFT DA	NE
P15	24.10.18	BACKGROUND ISSUE	MG

24/10/2018 5:22:43 PM

COLOUR FILL LEGEND

COMMERCIAL

RESIDENTIAL

HOTEL

Project **ELIZABETH STREET**

26 ELIZABETH STREET
LIVERPOOL

Drawing **SECTION 1**

Project No **218004**

Date **14/09/18**

Author **YY**

Scale: @ A1 **1 : 200**

Drawing No. **TP03.01 P15**

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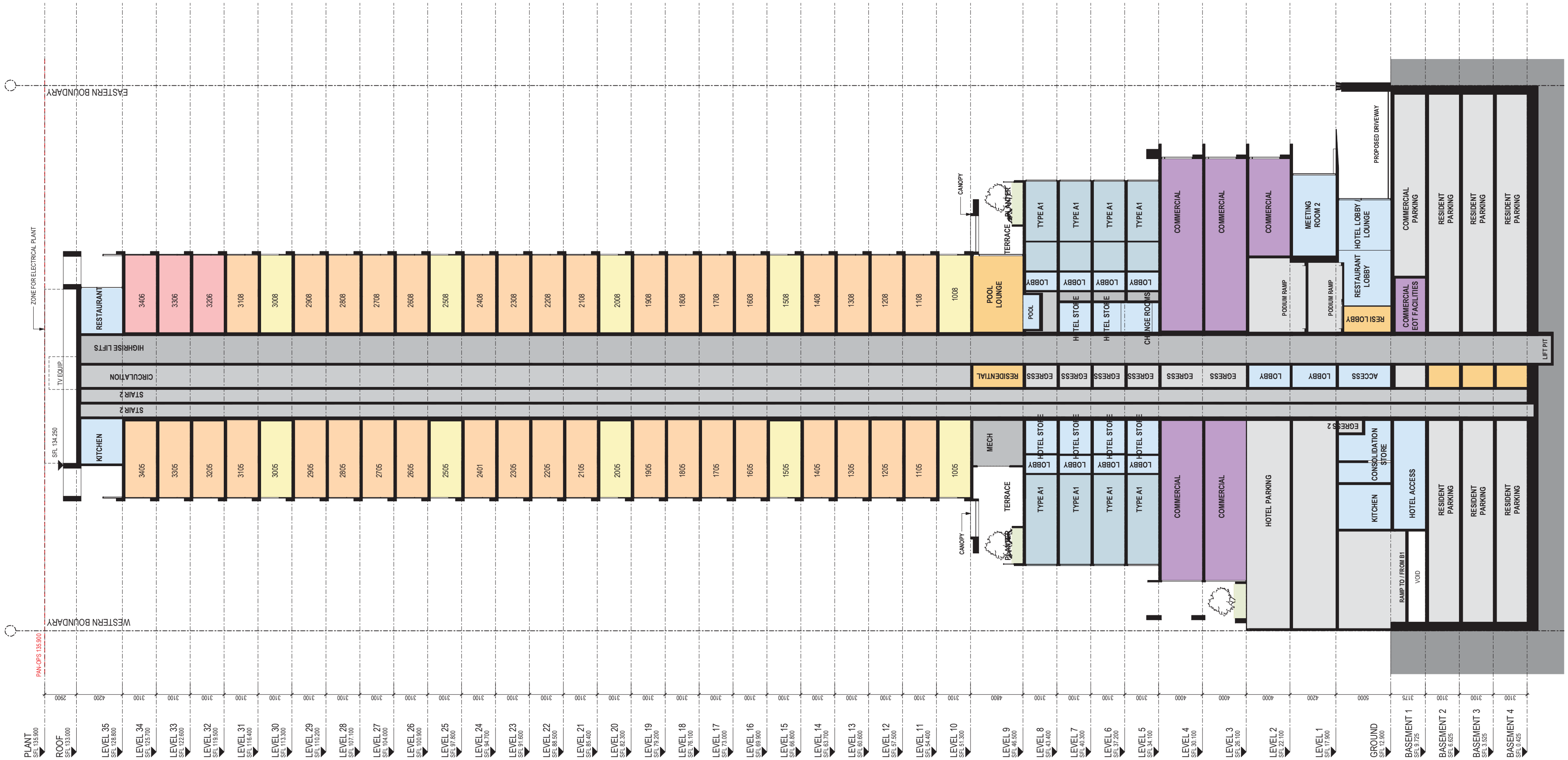

PRELIMINARY

Revisions

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P2	05.10.18	DRAFT DA	NE
P3	24.10.18	BACKGROUND ISSUE	MG

24/10/2018 5:23:29 PM

COLOUR FILL LEGEND

- COMMERCIAL
- RESIDENTIAL
- HOTEL

Project: **ELIZABETH STREET**

Drawing: **SECTION 2**

Project No: **218004**

Date: **14/09/18**

Author: **YY**

Scale: @ A1: **1 : 200**

Drawing No: **TP03.02 P3**

26 ELIZABETH STREET
LIVERPOOL

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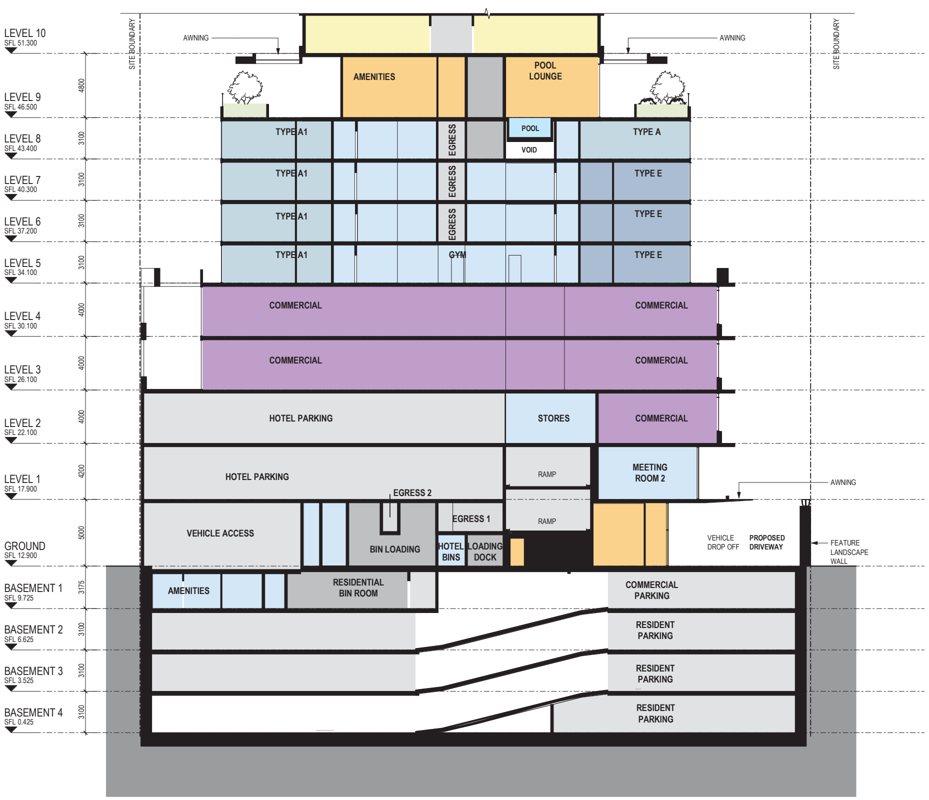

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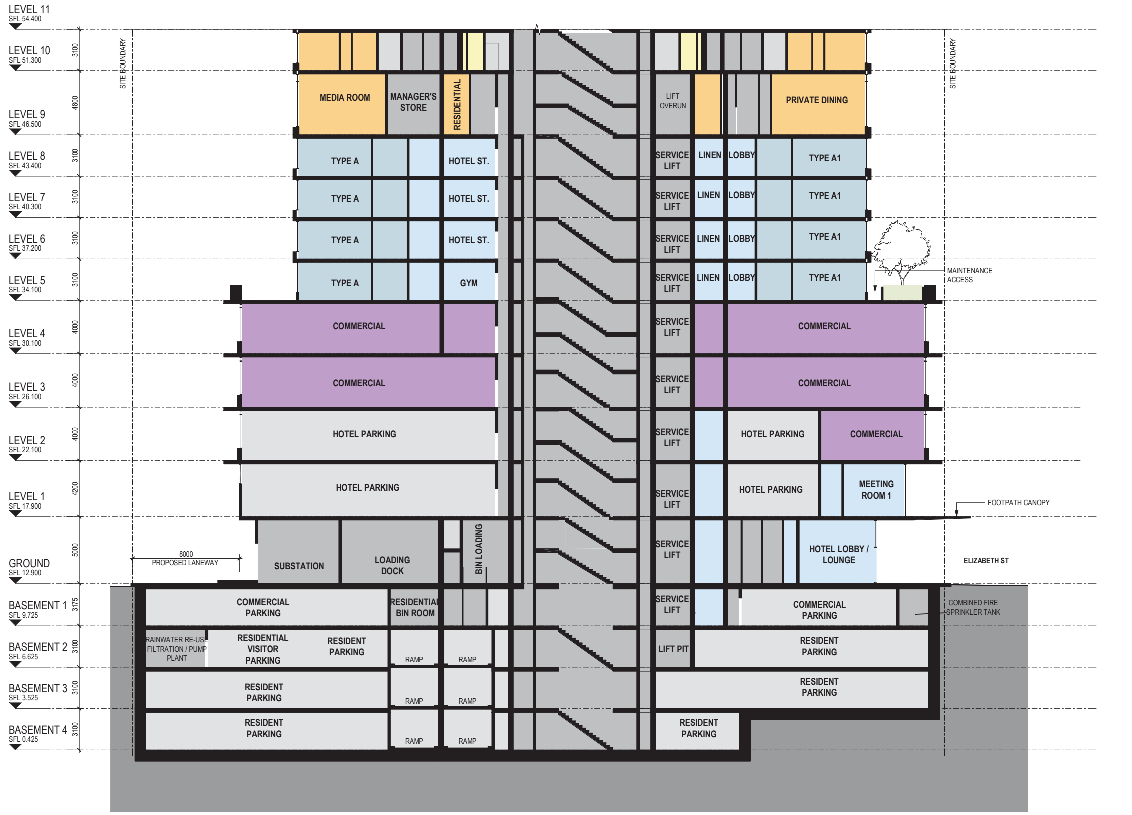

2 TP01.00 SECTION 4
SCALE 1 : 200

PRELIMINARY

Revisions

P11	10.09.18	BACKGROUND ISSUE	NE
P12	24.09.18	ISSUE FOR INFORMATION	MG
P13	04.10.18	ISSUE FOR INFORMATION	MG
P14	05.10.18	DRAFT DA	NE
P15	24.10.18	BACKGROUND ISSUE	MG

24/10/2018 5:23:41 PM

COLOUR FILL LEGEND
- COMMERCIAL
- RESIDENTIAL
- HOTEL

Project: ELIZABETH STREET
26 ELIZABETH STREET
LIVERPOOL

Drawing: SECTION 3&4

Project No: 218004
Date: 06/03/13
Author: YY
Scale: @ A1: 1 : 200
Drawing No.: TP03.10 P15

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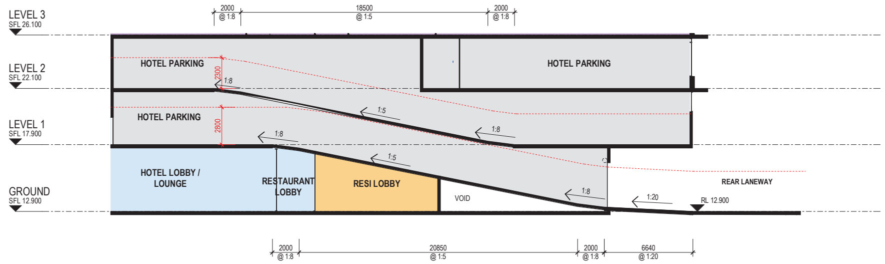

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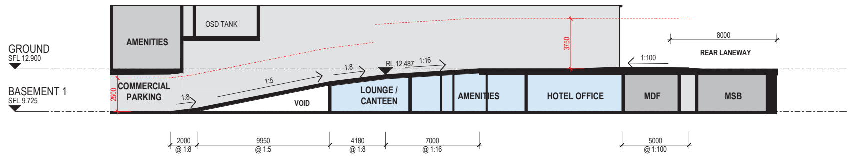

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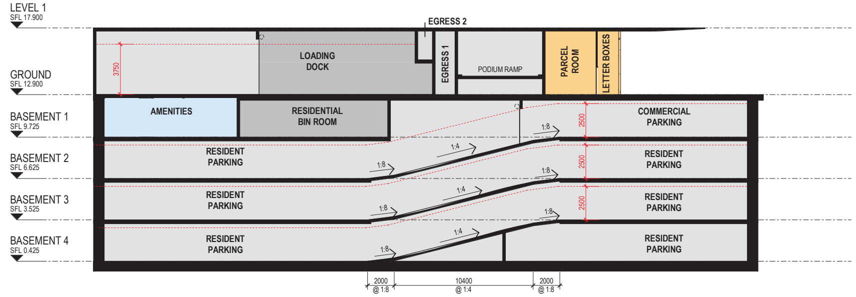

3 BASEMENT RAMP 2
SCALE 1 : 200

PRELIMINARY

Revisions

P3	10.09.18	BACKGROUND ISSUE	NE
P4	21.09.18	ISSUE FOR INFORMATION	MG
P5	04.10.18	ISSUE FOR INFORMATION	MG
P6	05.10.18	DRAFT DA	NE
P7	24.10.18	BACKGROUND ISSUE	MG

24/10/2018 5:23:46 PM

COLOUR FILL LEGEND
COMMERCIAL
RESIDENTIAL
HOTEL

Project **ELIZABETH STREET**
26 ELIZABETH STREET
LIVERPOOL

Drawing **RAMP SECTIONS**

Project No **218004**

Date **19/07/18**

Author **YY**

Scale: @ A1 **1 : 200**

Drawing No. **TP03.12 P7**

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PRELIMINARY

Revisions			
P1	05.10.18	DRAFT DA	NE
P2	24.10.18	BACKGROUND ISSUE	MG

24/10/2018 10:44:36 AM

Project **ELIZABETH STREET**

26 ELIZABETH STREET
LIVERPOOL

Drawing **SHADOW DIAGRAMS - WINTER 9AM**

Project No **218004**

Date **17/08/18**

Author **MG**

Scale: @ A1 **1 : 1000**

Drawing No. **TP05.01 P2**

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PRELIMINARY

Revisions

P1	05.10.18	DRAFT DA	NE
P2	24.10.18	BACKGROUND ISSUE	MG

24/10/2018 10:45:01 AM

Project **ELIZABETH STREET**

26 ELIZABETH STREET
LIVERPOOL

Drawing **SHADOW DIAGRAMS - WINTER 10AM**

Project No **218004**

Date **08/17/18**

Author **MG**

Scale: @ A1 **1 : 1000**

Drawing No. **TP05.02 P2**

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PRELIMINARY

Revisions				
P1	05.10.18	DRAFT DA		NE
P2	24.10.18	BACKGROUND ISSUE		MG

24/10/2018 10:45:24 AM

Project **ELIZABETH STREET**

26 ELIZABETH STREET
LIVERPOOL

Drawing **SHADOW DIAGRAMS - WINTER 11AM**

Project No **218004**

Date **13/09/18**

Author **MG**

Scale: @ A1 **1 : 1000**

Drawing No. **TP05.03 P2**

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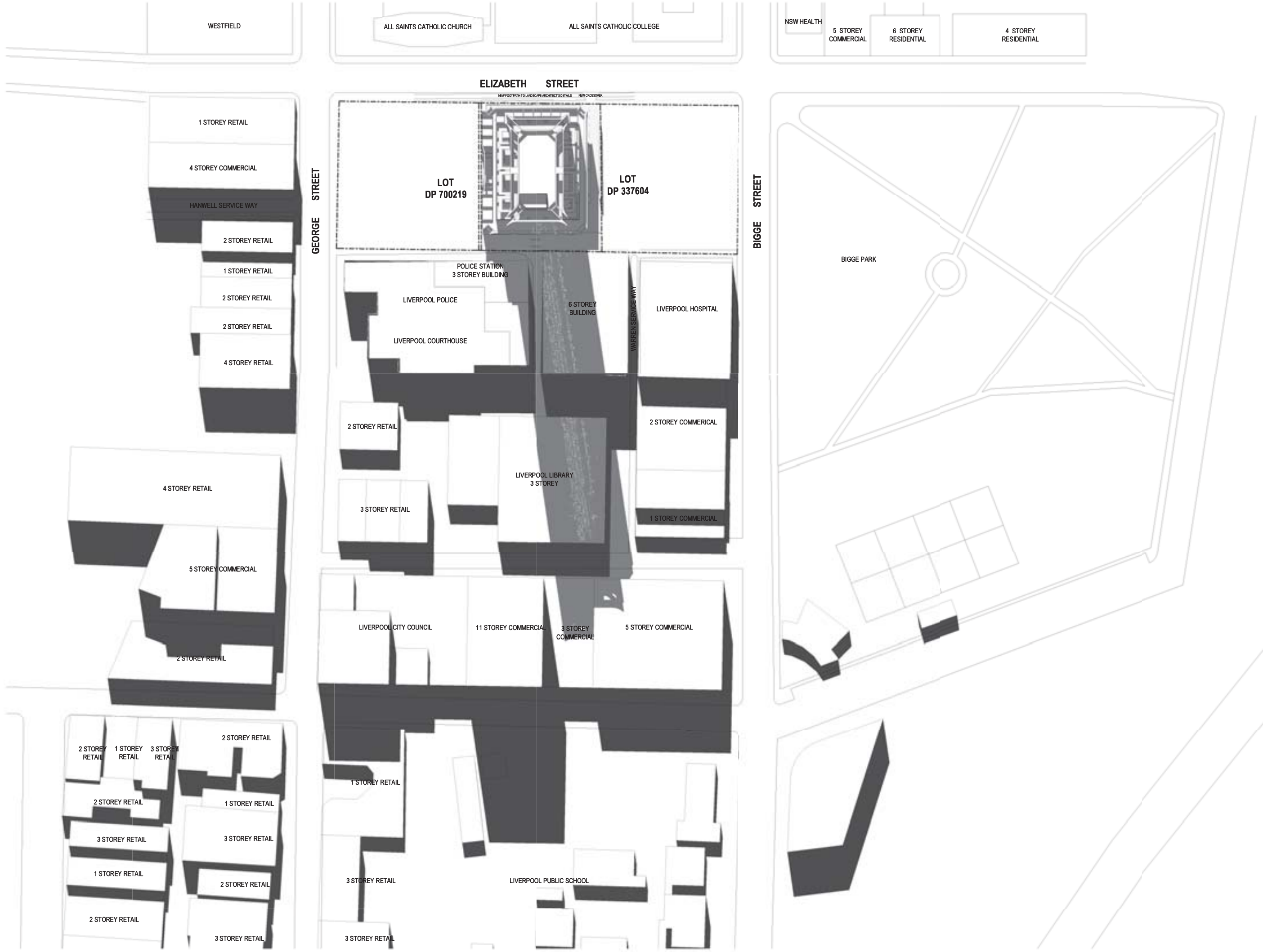

PRELIMINARY

Revisions

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P2	24.10.18	BACKGROUND ISSUE	MG

24/10/2018 10:45:47 AM

Project **ELIZABETH STREET**

26 ELIZABETH STREET
LIVERPOOL

Drawing **SHADOW DIAGRAMS - WINTER 12PM**

Project No **218004**

Date **13/09/18**

Author **MG**

Scale: @ A1 **1 : 1000**

Drawing No. **TP05.04 P2**

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PRELIMINARY

Revisions

P1	05.10.18	DRAFT DA	NE
P2	24.10.18	BACKGROUND ISSUE	MG

24/10/2018 10:46:11 AM

Project: **ELIZABETH STREET**

26 ELIZABETH STREET
LIVERPOOL

Drawing: **SHADOW DIAGRAMS - WINTER 1PM**

Project No: **218004**

Date: **13/09/18**

Author: **MG**

Scale: @ A1: **1 : 1000**

Drawing No.: **TP05.05 P2**

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PRELIMINARY

Revisions

P1	05.10.18	DRAFT DA	NE
P2	24.10.18	BACKGROUND ISSUE	MG

24/10/2018 10:46:37 AM

Project **ELIZABETH STREET**

26 ELIZABETH STREET
LIVERPOOL

Drawing **SHADOW DIAGRAMS - WINTER 2PM**

Project No **218004**

Date **13/09/18**

Author **MG**

Scale: @ A1 **1 : 1000**

Drawing No. **TP05.06 P2**

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WINTER SOLSTICE - 3PM

PRELIMINARY

Revisions			
P1	05.10.18	DRAFT DA	NE
P2	24.10.18	BACKGROUND ISSUE	MG

24/10/2018 10:47:07 AM

Project	Drawing	Project No	Date	Author	Scale: @ A1	Drawing No.
ELIZABETH STREET	SHADOW DIAGRAMS - WINTER 3PM	218004	13/09/18	MG	1 : 1000	TP05.07 P2

26 ELIZABETH STREET
LIVERPOOL

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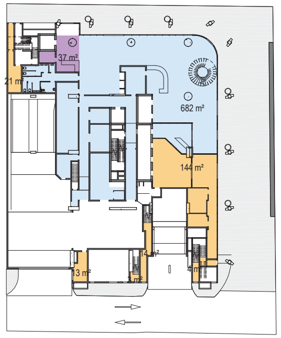

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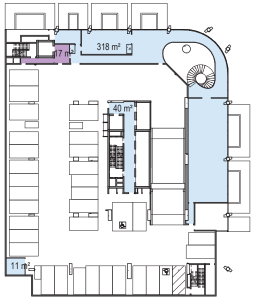

2 TP00.06 LEVEL 1
SCALE 1 : 500

8 TP00.06 LEVEL 2
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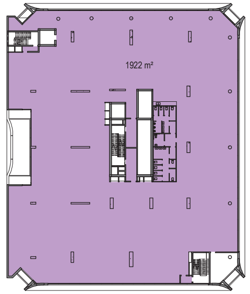

13 TP00.06 LEVEL 3
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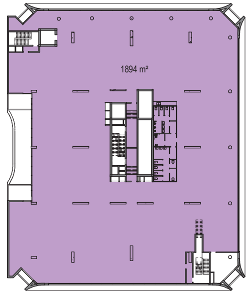

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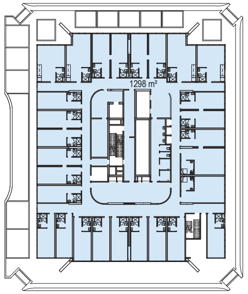

10 TP00.06 LEVEL 5
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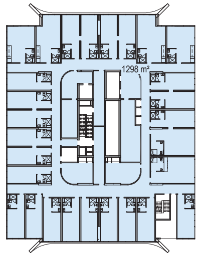

14 TP00.06 LEVEL 6
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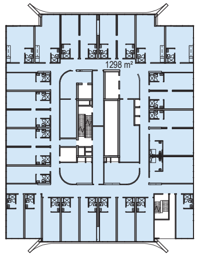
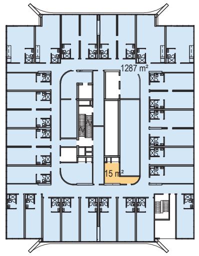


7 TP00.06 LEVEL 7
SCALE 1 : 500



5 TP00.06 LEVEL 8
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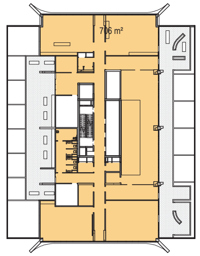

9 TP00.06 LEVEL 9
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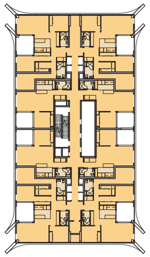

11 TP00.06 LEVELS 10, 15, 20, 25, 30
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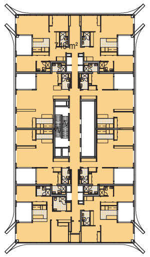

4 TP00.06 LEVELS 11-14, 16-19, 21-24, 26-29 & 31
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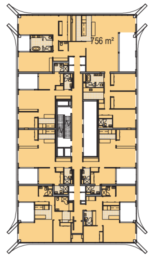

12 TP00.06 LEVELS 32-34
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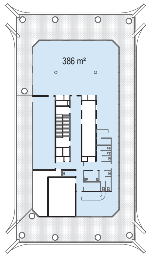

6 TP00.06 LEVEL 35
SCALE 1 : 500

GFA	
LEVEL	AREA
GROUND	919 m²
LEVEL 1	386 m²
LEVEL 2	709 m²
LEVEL 3	1922 m²
LEVEL 4	1894 m²
LEVEL 5	1298 m²
LEVEL 6	1298 m²
LEVEL 7	1298 m²
LEVEL 8	1303 m²
LEVEL 9	706 m²
LEVEL 10	749 m²
LEVEL 11	746 m²
LEVEL 12	746 m²
LEVEL 13	746 m²
LEVEL 14	746 m²
LEVEL 15	749 m²
LEVEL 16	746 m²
LEVEL 17	746 m²
LEVEL 18	746 m²
LEVEL 19	746 m²
LEVEL 20	749 m²
LEVEL 21	746 m²
LEVEL 22	746 m²
LEVEL 23	746 m²
LEVEL 24	746 m²
LEVEL 25	749 m²
LEVEL 26	746 m²
LEVEL 27	746 m²
LEVEL 28	746 m²
LEVEL 29	746 m²
LEVEL 30	749 m²
LEVEL 31	746 m²
LEVEL 32	756 m²
LEVEL 33	756 m²
LEVEL 34	756 m²
LEVEL 35	386 m²
TOTAL	**30820 m²**

PROGRAM	GFA
COMMERCIAL	4500 m²
HOTEL	6700 m²
RESIDENTIAL	19620 m²
	30820 m²

PRELIMINARY

Revisions

P2	10.08.18	DRAFT BACKGROUND ISSUE	NE
P3	24.08.18	ISSUE FOR INFORMATION	YY
P4	20.09.18	ISSUE FOR INFORMATION	MG
P5	05.10.18	DRAFT DA	NE
P6	24.10.18	BACKGROUND ISSUE	MG

24/10/2018 5:32:26 PM

COLOUR FILL LEGEND

- COMMERCIAL
- RESIDENTIAL
- HOTEL

Project **ELIZABETH STREET**
26 ELIZABETH STREET
LIVERPOOL

Drawing **GFA DIAGRAMS**

Project No **218004** Date **14/09/18** Author **YY** Scale: @ A1 **As indicated**

Drawing No. **TP06.01 P6**

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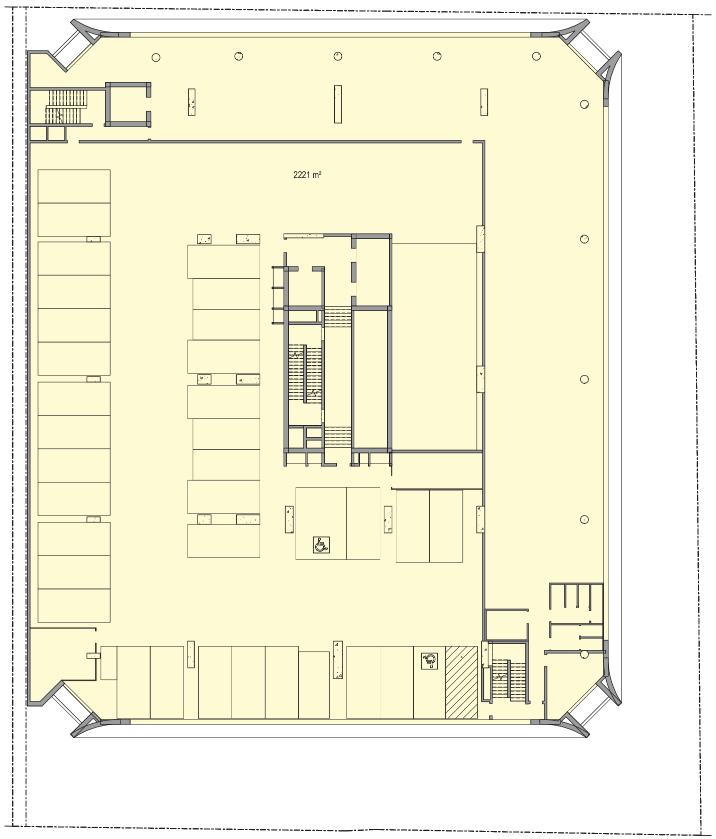
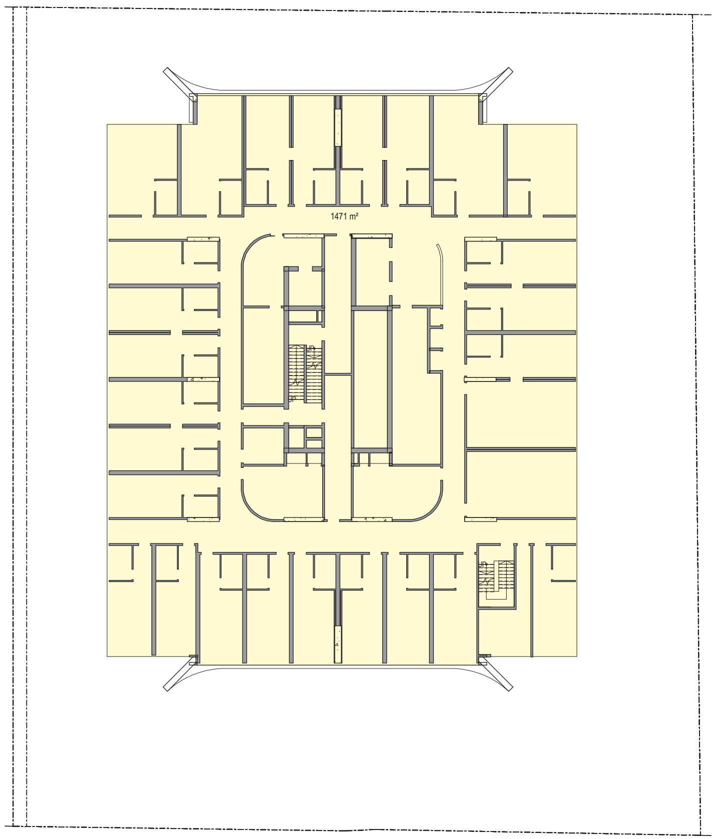
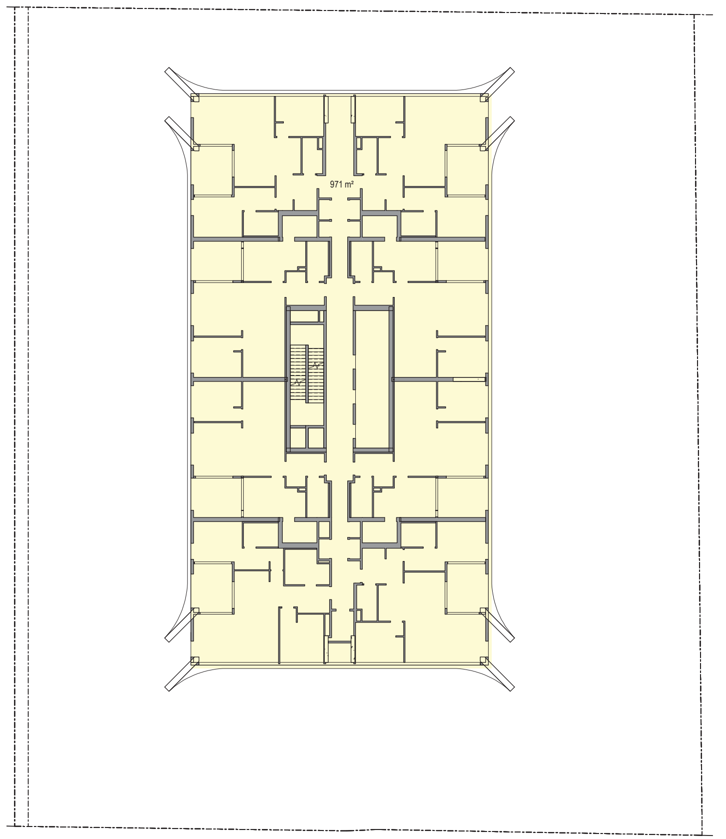


TYPICAL LOWER PODIUM COMMERCIAL



TYPICAL UPPER PODIUM HOTEL



TYPICAL TOWER RESIDENTIAL

GBA	SITE AREA	% SITE COVER
TYPICAL LOWER PODIUM		
2221 m²	3082 m²	72.1%
TYPICAL UPPER PODIUM		
1471 m²	3082 m²	47.7%
	AVERAGE NON-RESIDENTIAL	59.9%
TYPICAL TOWER		
971 m²	3082 m²	31.5%

PRELIMINARY

Revisions

P1	05.10.18	DRAFT DA	NE
P2	24.10.18	BACKGROUND ISSUE	MG

24/10/2018 5:25:37 PM

Project: **ELIZABETH STREET**

26 ELIZABETH STREET
LIVERPOOL

Drawing: **SITE COVER DIAGRAMS**

Project No: **218004**

Date: **14/09/18**

Author: **NE**

Scale: @ A1: **1 : 200**

Drawing No.: **TP06.02 P2**

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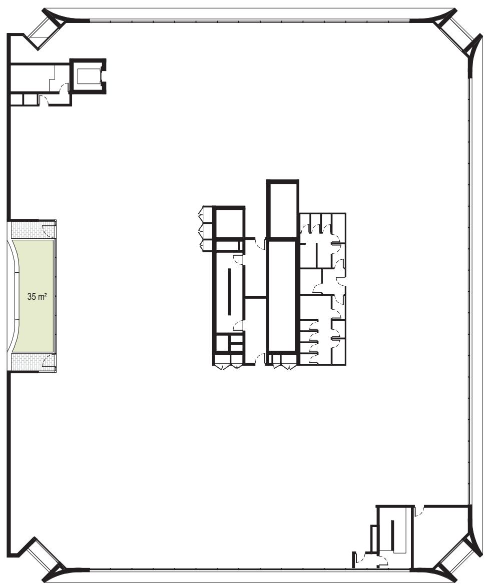
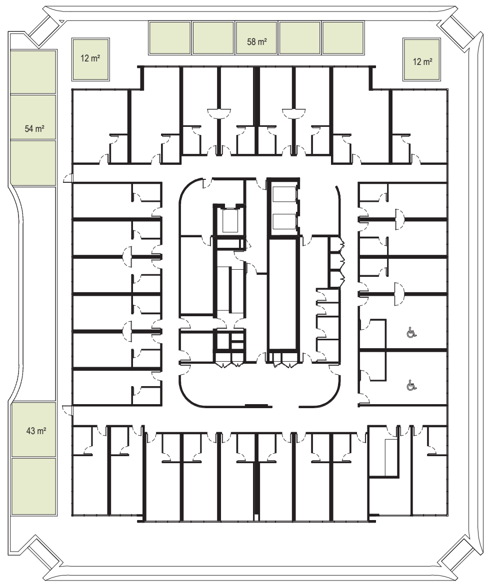
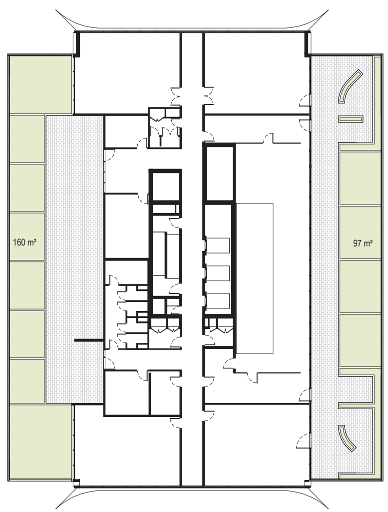


DEEP SOIL PLANTING - LEVEL 3



DEEP SOIL PLANTING - LEVEL 5



DEEP SOIL PLANTING - LEVEL 9

LIVERPOOL DCP
2.3 Site Cover and Deep Soil Zones
3. The deep soil zone shall comprise no less than 15% of the total site area (or proportionate to the percentage of residential uses in a mixed-use development). It is to be provided preferably in one continuous block but otherwise with no dimension (width or length) less than 6m.
4. Where non-residential development results in full site coverage and there is no capacity for water infiltration, the deep soil component must be provided on structure, in accordance with the provisions of Section 2.5. In such cases, compensatory stormwater management measures must be integrated within the development to minimise stormwater runoff.
2.5 Planting on Structures
4. Provide sufficient soil depth and area to allow for plant establishment and growth. The following minimum standards are recommended:
a. Large trees (over 8m high) minimum soil depth 1.3m, minimum soil volume 150m3
b. Medium trees (2 – 8m high), minimum soil depth 1m, minimum soil volume 35m3
c. Small trees (up to 2m high), minimum soil depth 0.8m, minimum soil volume 9m3
d. Shrubs and ground cover, minimum soil depth 0.5m, no minimum soil volume.

DEEP PLANTING SCHEDULE

LEVEL	AREA	DEPTH
LEVEL 3	35 m²	800mm
LEVEL 5	43 m²	800mm
LEVEL 5	54 m²	800mm
LEVEL 5	12 m²	800mm
LEVEL 5	12 m²	800mm
LEVEL 5	58 m²	800mm
LEVEL 9	97 m²	600 - 800mm
LEVEL 9	160 m²	800 - 1000mm
TOTAL	471 m²	

SITE AREA	DEEP SOIL AREA	% OF DEEP SOIL
3082m²	471m²	15.3%

PRELIMINARY

Revisions

P1	05.10.18	DRAFT DA	NE
P2	24.10.18	BACKGROUND ISSUE	MG

24/10/2018 5:25:45 PM

LEGEND

DEEP SOIL PLANTING AREA

Project **ELIZABETH STREET**

26 ELIZABETH STREET
LIVERPOOL

Drawing **DEEP SOIL PLANTING DIAGRAM**

Project No **218004**

Date **14/09/18**

Author **YY**

Scale: @ A1 **As indicated**

Drawing No. **TP06.03 P2**

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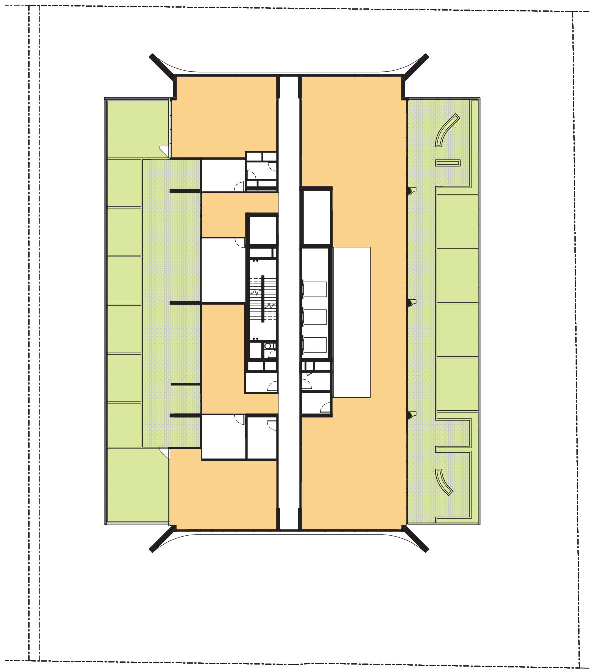
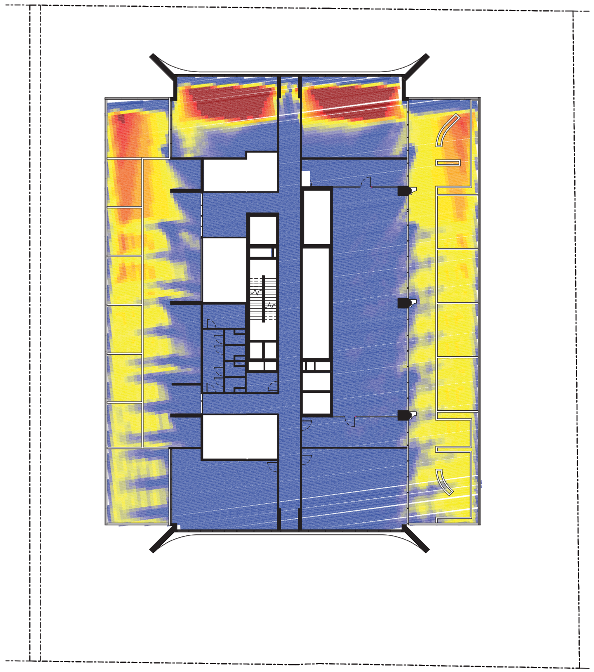


COMMUNAL OPEN SPACE - LEVEL 9



MIDWINTER COS SOLAR ACCESS

SITE AREA	COMMUNAL OPEN SPACE		% OF SITE AREA
3082m²	EXTERNAL	567m²	
	INTERNAL	513m²	
	TOTAL	1080m²	35.0%
	COS IN SUNLIGHT FOR 2HRS+ BETWEEN 9AM - 3PM		% OF MIN COS IN SUNLIGHT
	443m²		57.5%

PRELIMINARY

Revisions

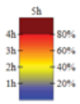
P1	05.10.18	DRAFT DA	NE
P2	24.10.18	BACKGROUND ISSUE	MG

24/10/2018 5:25:51 PM

LEGEND

EXTERNAL COMMUNAL OPEN SPACE

INTERNAL COMMUNAL OPEN SPACE



Project ELIZABETH STREET

26 ELIZABETH STREET
LIVERPOOL

Drawing COMMUAL OPEN SPACE PLANS

Project No 218004

Date 14/09/18

Author YY

Scale: @ A1 As indicated

Drawing No. TP06.04 P2

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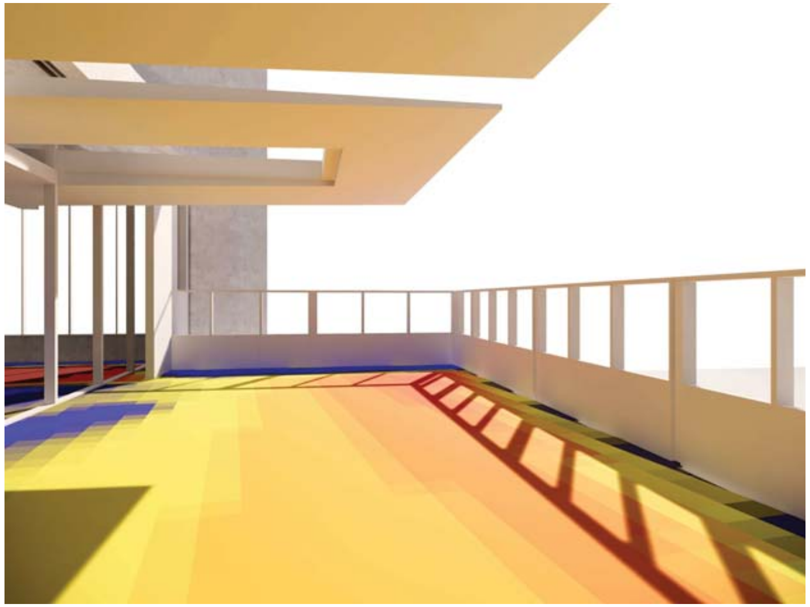

IMAGE OF SOLAR COVERAGE ON EASTERN TERRACE

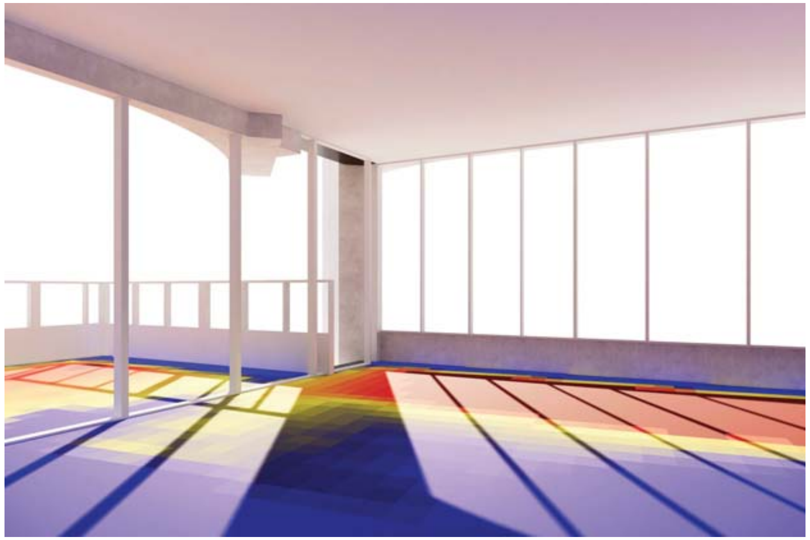

IMAGE OF SOLAR COVERAGE ON WESTERN TERRACE

SITE AREA	COMMUNAL OPEN SPACE	% OF COS
3082m²	1080m²	35.0%
	COS IN SUNLIGHT FOR 2HRS+ BETWEEN 9AM - 3PM	% OF MIN. COS IN SUNLIGHT
	443m²	57.5%

PRELIMINARY

Revisions
P1 05.10.18 DRAFT DA
P2 24.10.18 BACKGROUND ISSUE

24/10/2018 5:25:58 PM

LEGEND
NE MG 2+ HOURS SOLAR ACCESS
2 HOURS SOLAR ACCESS
0 HOURS SOLAR ACCESS
COMMUNAL OPEN SPACE

Project **ELIZABETH STREET**
26 ELIZABETH STREET
LIVERPOOL

Drawing **SOLAR COMMUNAL OPEN SPACE**

Project No **218004**

Date **14/09/18**

Author **YY**

Scale: @ A1 **As indicated**

Drawing No. **TP06.05 P2**

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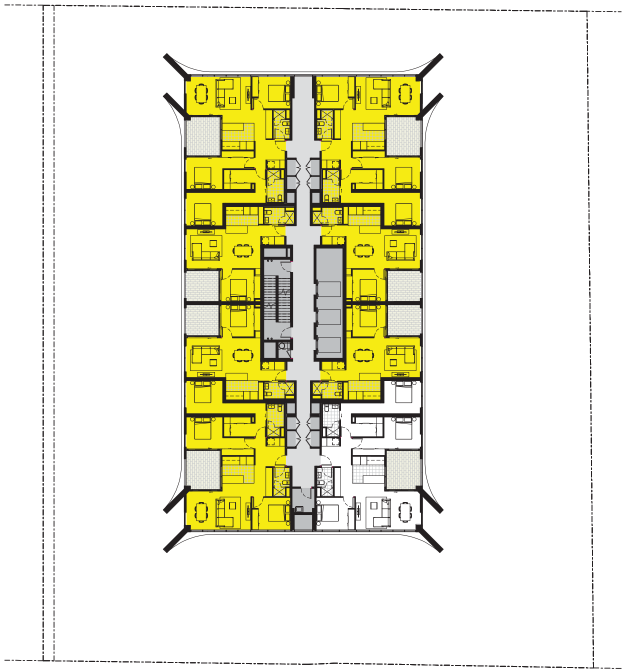
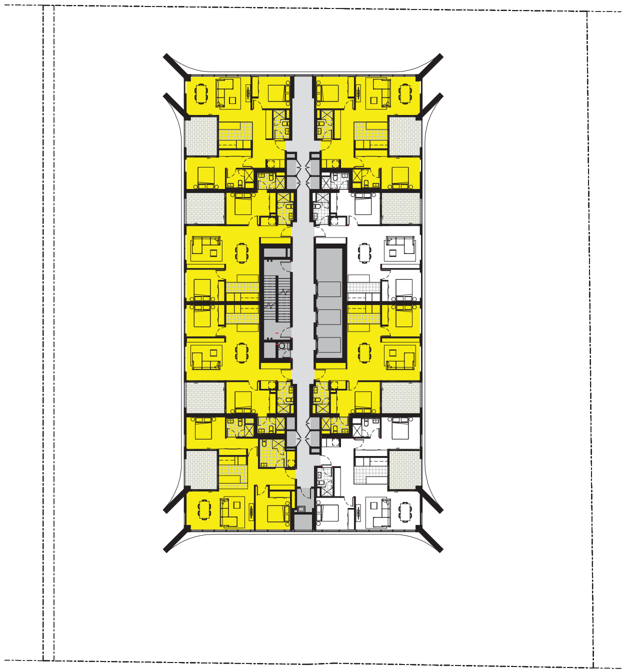
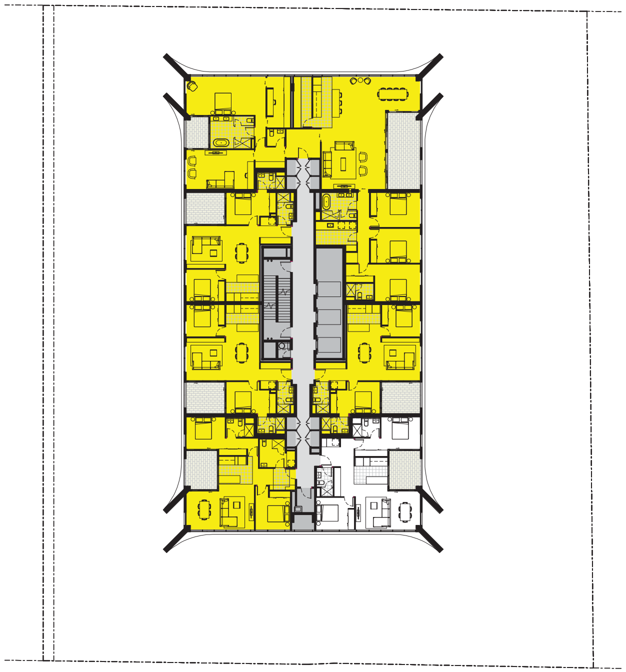
LEVEL	No. SOLAR
LEVEL 10	7
LEVEL 11	6
LEVEL 12	6
LEVEL 13	6
LEVEL 14	6
LEVEL 15	7
LEVEL 16	6
LEVEL 17	6
LEVEL 18	6
LEVEL 19	6
LEVEL 20	7
LEVEL 21	6
LEVEL 22	6
LEVEL 23	6
LEVEL 24	6
LEVEL 25	7
LEVEL 26	6
LEVEL 27	6
LEVEL 28	6
LEVEL 29	6
LEVEL 30	7
LEVEL 31	6
LEVEL 32	5
LEVEL 33	5
LEVEL 34	5
	152
	SOLAR COMPLIANT
	78.4%



LEVEL 10, 15, 20, 25, 30



LEVEL 11-14, 16-19, 21-24, 26-29, 31



LEVEL 32-34

PRELIMINARY

Revisions
P1 05.10.18 DRAFT DA
P2 24.10.18 BACKGROUND ISSUE

24/10/2018 5:26:19 PM

LEGEND

COMPLIANT 2HR SOLAR ACCESS

NOTE: AS ALL RESIDENTIAL UNITS ARE ON OR ABOVE THE 10TH STOREY, THE APARTMENTS ARE DEEMED TO BE CROSS VENTILATED GIVEN THERE IS NO ENCLOSURE TO THE BALCONIES
NE
MG

Project **ELIZABETH STREET**
26 ELIZABETH STREET
LIVERPOOL

Drawing **SOLAR AND CROSS VENTILATION COMPLIANCE**

Project No **218004**

Date **14/09/18**

Author **YY**

Scale: @ A1 **1 : 250**

Drawing No. **TP06.10 P2**

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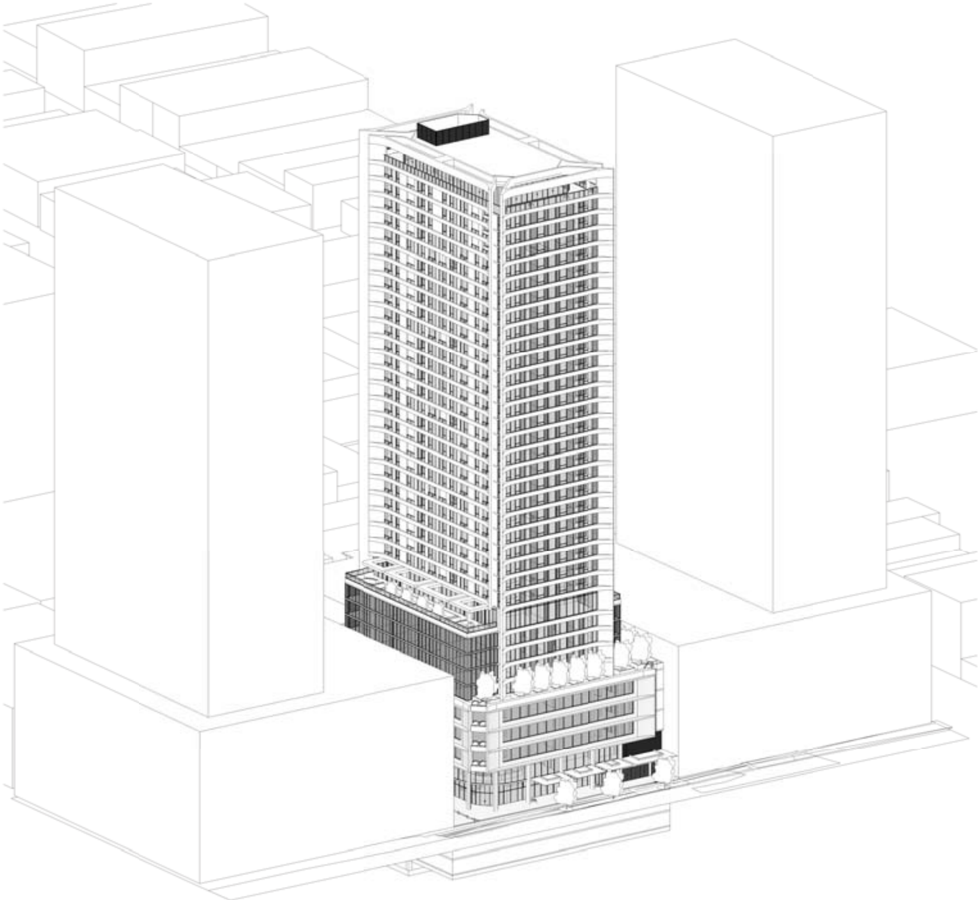
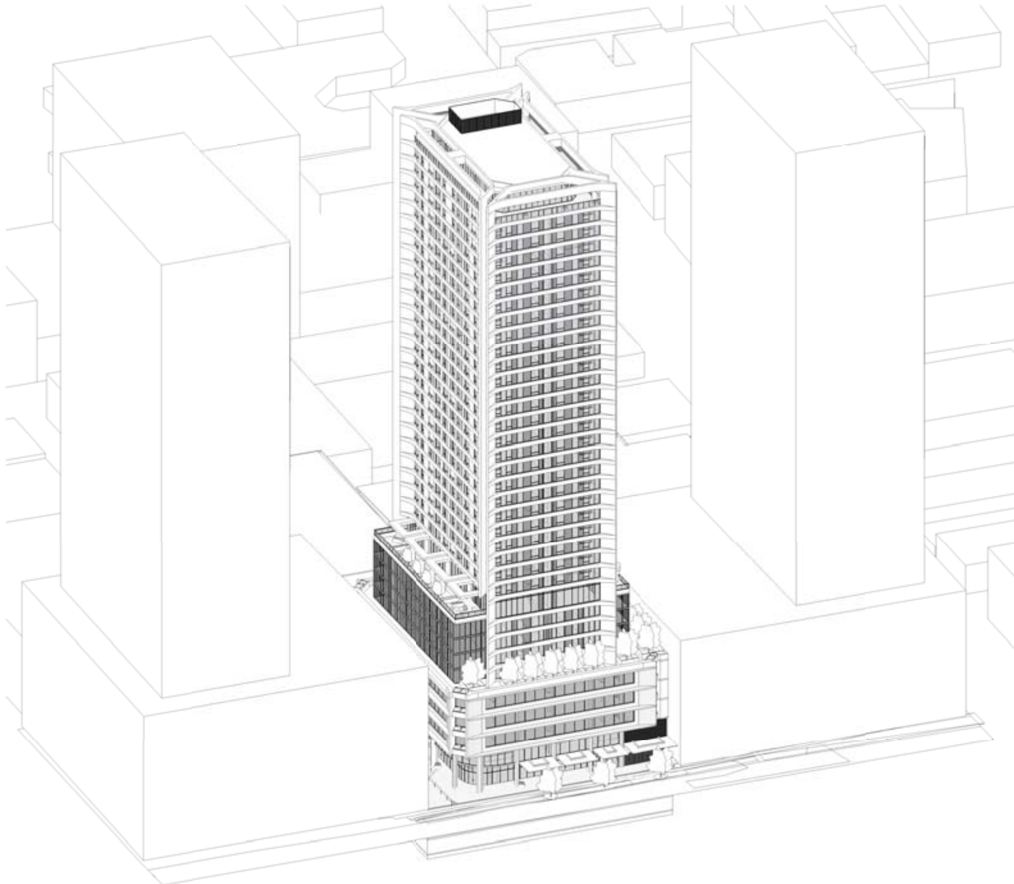


Winter Solstice 9am



Winter Solstice 10am

PRELIMINARY

Revisions

P1	05.10.18	DRAFT DA
P2	24.10.18	BACKGROUND ISSUE

NOTE: Neighouring sites development calculated assuming maximum GFA / maximum height under pan ops to determine maximum tower floor plate size.

24/10/2018 5:27:17 PM

Project **ELIZABETH STREET**

26 ELIZABETH STREET
LIVERPOOL

Drawing **SOLAR POINT OF VIEW STUDY**

Project No **218004**

Date **14/09/18**

Author **MG**

Scale: @ A1

Drawing No. **TP06.11 P2**

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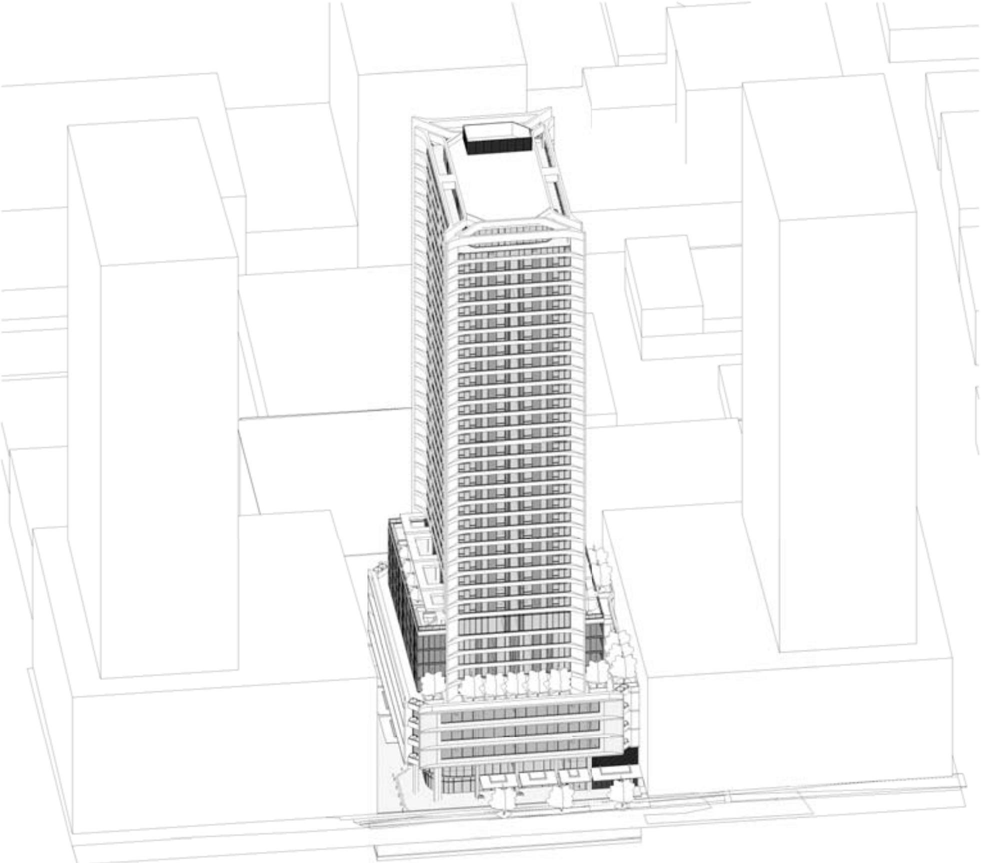
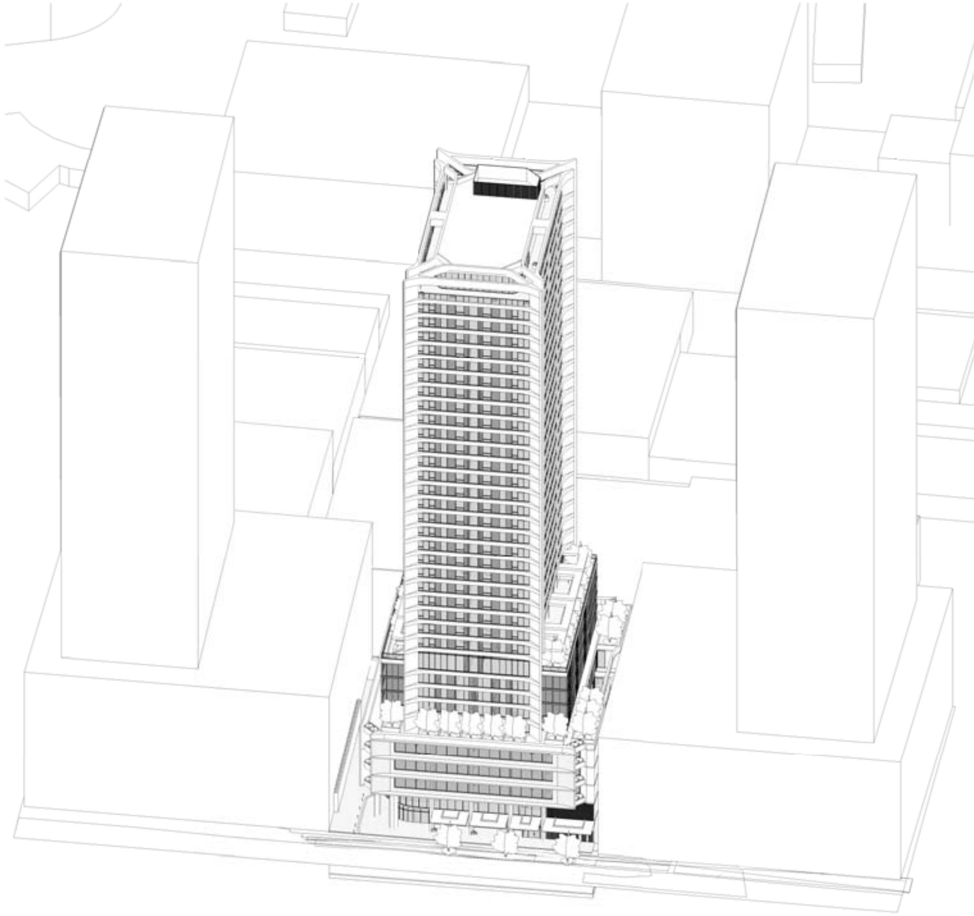


Winter Solstice 11am



Winter Solstice 12pm

PRELIMINARY

Revisions

P1	05.10.18	DRAFT DA	NE
P2	24.10.18	BACKGROUND ISSUE	MG

24/10/2018 5:28:00 PM

Project **ELIZABETH STREET**

26 ELIZABETH STREET
LIVERPOOL

Drawing **SOLAR POINT OF VIEW STUDY**

Project No **218004**

Date **14/09/18**

Author **MG**

Scale: @ A1

Drawing No. **TP06.12 P2**

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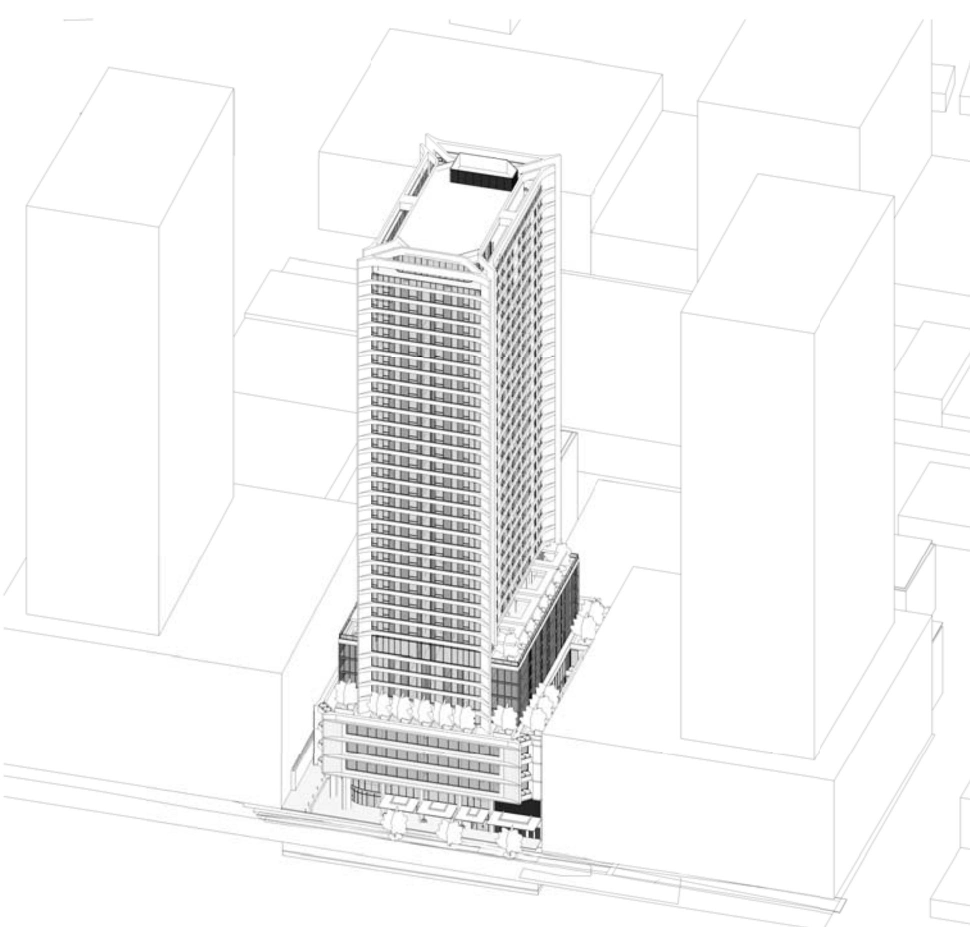
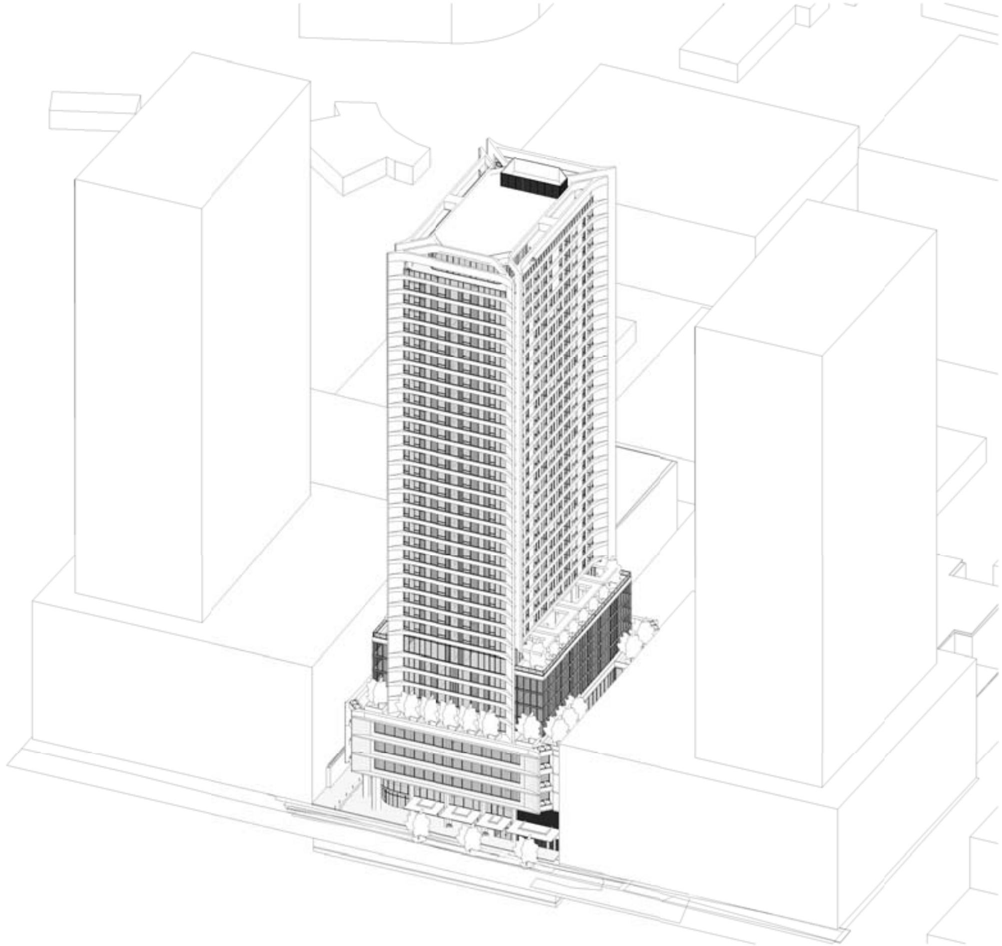


Winter Solstice 12.30pm



Winter Solstice 1pm

PRELIMINARY

Revisions			
P1	05.10.18	DRAFT DA	NE
P2	24.10.18	BACKGROUND ISSUE	MG

24/10/2018 5:28:56 PM

Project: **ELIZABETH STREET**
26 ELIZABETH STREET
LIVERPOOL

Drawing: **SOLAR POINT OF VIEW STUDY**

Project No: **218004**

Date: **27/09/18**

Author: **MG**

Scale: @ A1

Drawing No.: **TP06.13 P2**

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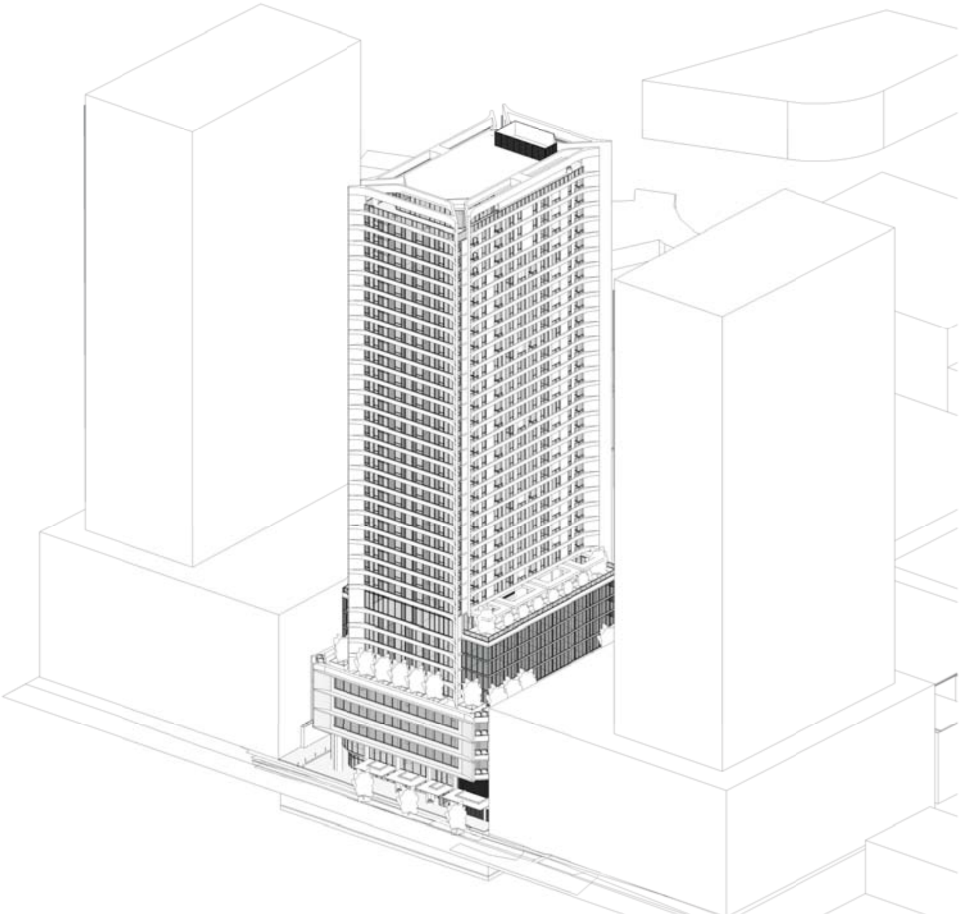
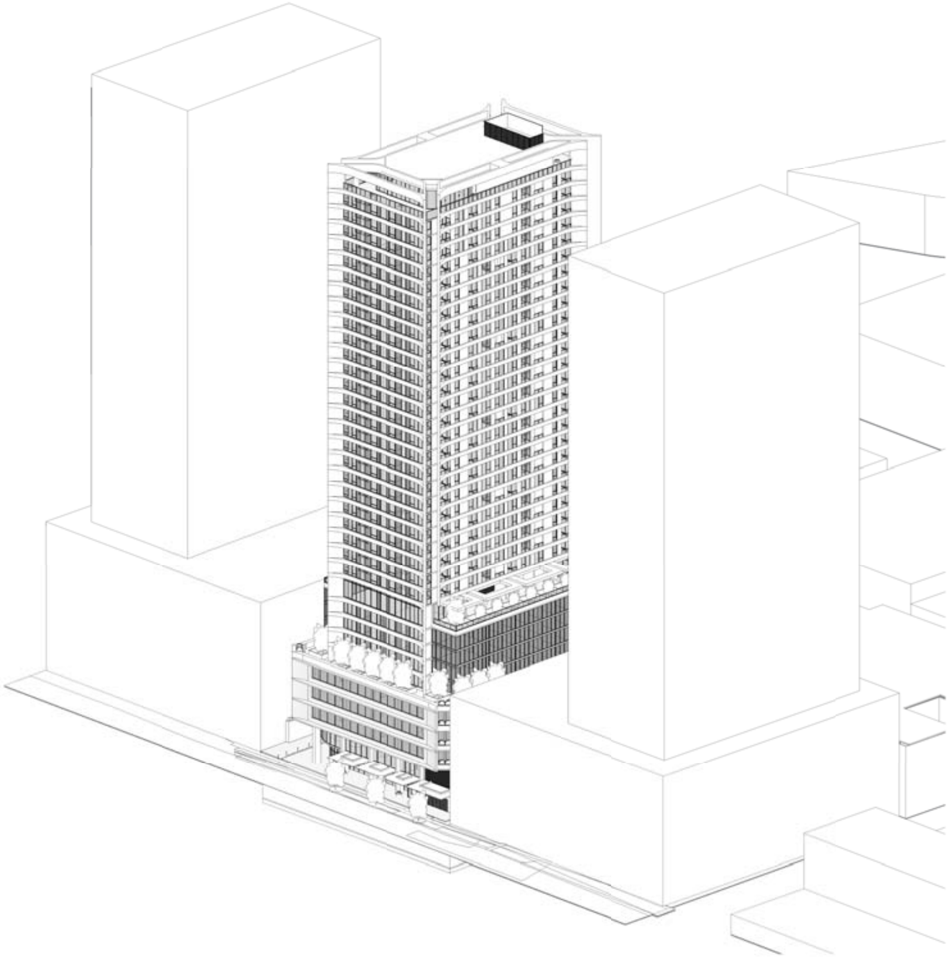


Winter Solstice 2pm



Winter Solstice 2.30pm

PRELIMINARY

Revisions			
P1	05.10.18	DRAFT DA	NE
P2	24.10.18	BACKGROUND ISSUE	MG

24/10/2018 5:30:04 PM

Project: **ELIZABETH STREET**

26 ELIZABETH STREET
LIVERPOOL

Drawing: **SOLAR POINT OF VIEW STUDY**

Project No: **218004**

Date: **27/09/18**

Author: **MG**

Scale: @ A1

Drawing No.: **TP06.14 P2**

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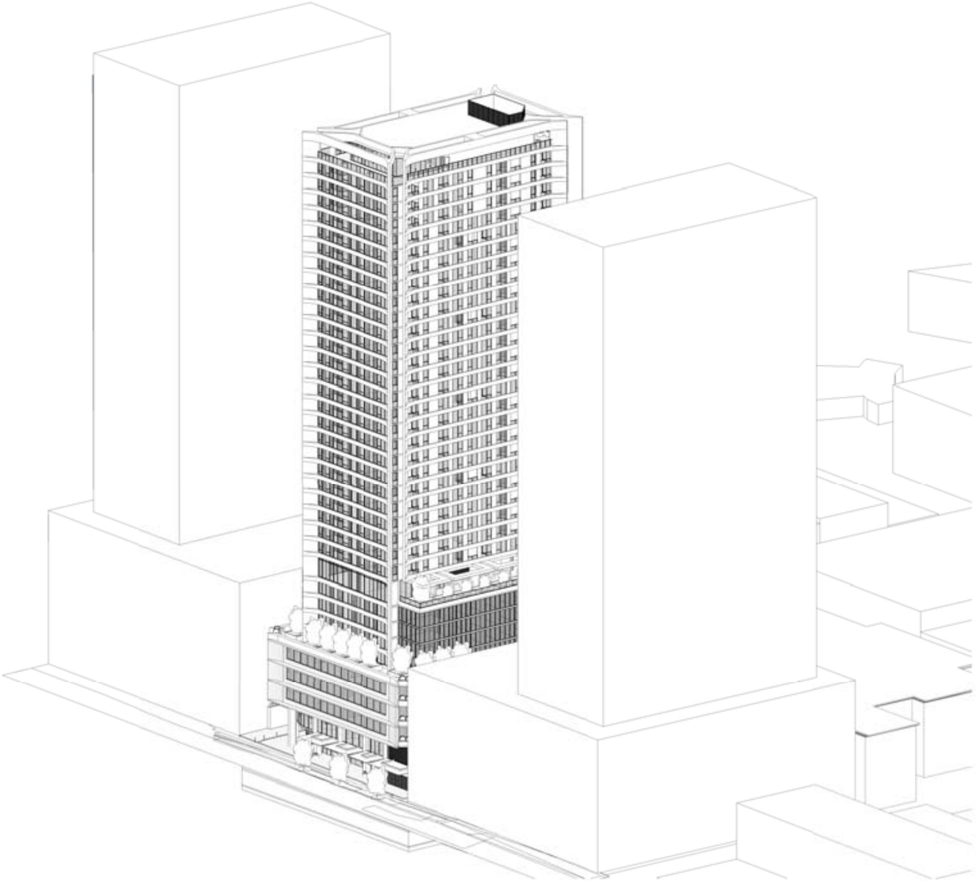

Winter Solstice 3pm

PRELIMINARY

Revisions			
P1	05.10.18	DRAFT DA	NE
P2	24.10.18	BACKGROUND ISSUE	MG

24/10/2018 5:30:44 PM

Project: **ELIZABETH STREET**

26 ELIZABETH STREET
LIVERPOOL

Drawing: **SOLAR POINT OF VIEW STUDY**

Project No: **218004**

Date: **27/09/18**

Author: **MG**

Scale: @ A1

Drawing No.: **TP06.15 P2**

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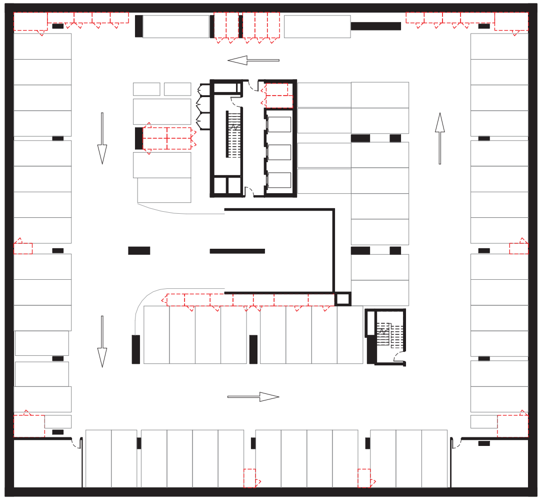
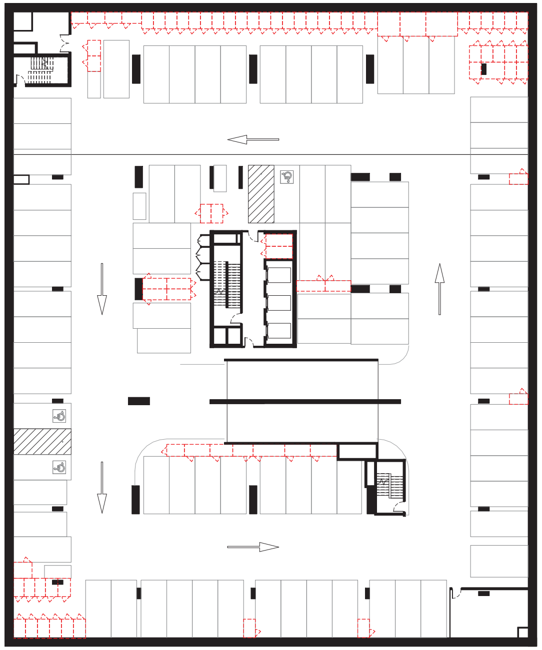
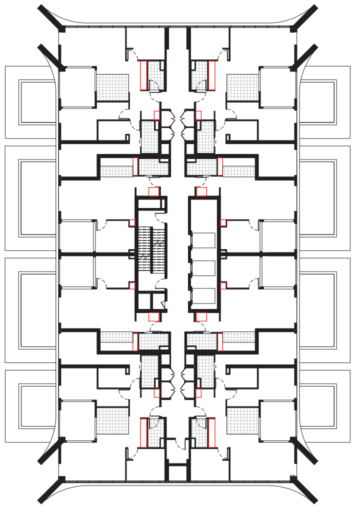


STORAGE - B4

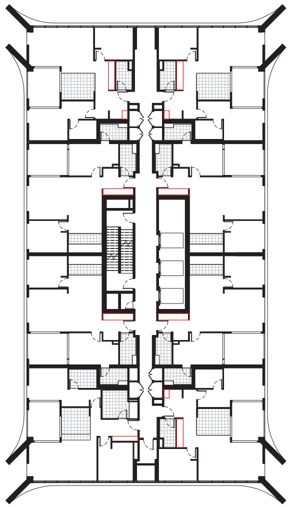


STORAGE - B3

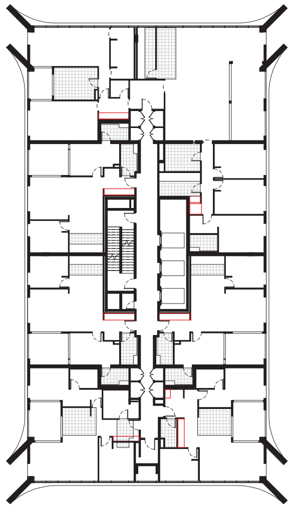
STORAGE - B2



LEVEL 10, 15, 20, 25, 30



LEVEL 11-14, 16-19, 21-24, 26-29, 31



LEVEL 32-34

PRELIMINARY

Revisions			
P1	05.10.18	DRAFT DA	NE
P2	24.10.18	BACKGROUND ISSUE	MG

24/10/2018 5:30:56 PM

Project / **ELIZABETH STREET**

Drawing / **STORAGE PLAN**

Project No / **218004**

Date / **14/09/18**

Author / **YY**

Scale: @ A1 / **1 : 250**

Drawing No. / **TP06.20 P2**

26 ELIZABETH STREET
LIVERPOOL

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RESIDENTIAL STORAGE WITHIN APARTMENT		
UNIT	UNIT TYPE	VOLUME
LEVEL 10		
1001	1 BED	4 m^3
1002	3 BED	5 m^3
1003	3 BED	5 m^3
1004	1 BED	4 m^3
1005	1 BED	4 m^3
1006	3 BED	5 m^3
1007	3 BED	5 m^3
1008	1 BED	4 m^3
LEVEL 11		
1101	2 BED	8 m^3
1102	2 BED	5 m^3
1103	2 BED	3 m^3
1104	2 BED	8 m^3
1105	2 BED	8 m^3
1106	2 BED	5 m^3
1107	2 BED	5 m^3
1108	2 BED	8 m^3
LEVEL 12		
1201	2 BED	8 m^3
1202	2 BED	5 m^3
1203	2 BED	3 m^3
1204	2 BED	8 m^3
1205	2 BED	8 m^3
1206	2 BED	5 m^3
1207	2 BED	5 m^3
1208	2 BED	8 m^3
LEVEL 13		
1301	2 BED	8 m^3
1302	2 BED	5 m^3
1303	2 BED	3 m^3
1304	2 BED	8 m^3
1305	2 BED	8 m^3
1306	2 BED	5 m^3
1307	2 BED	5 m^3
1308	2 BED	8 m^3
LEVEL 14		
1401	2 BED	8 m^3
1402	2 BED	5 m^3
1403	2 BED	3 m^3
1404	2 BED	8 m^3
1405	2 BED	8 m^3
1406	2 BED	5 m^3
1407	2 BED	5 m^3
1408	2 BED	8 m^3

RESIDENTIAL STORAGE WITHIN APARTMENT		
UNIT	UNIT TYPE	VOLUME
LEVEL 15		
1501	1 BED	4 m^3
1502	3 BED	5 m^3
1503	3 BED	5 m^3
1504	1 BED	4 m^3
1505	1 BED	4 m^3
1506	3 BED	5 m^3
1507	3 BED	5 m^3
1508	1 BED	4 m^3
LEVEL 16		
1601	2 BED	8 m^3
1602	2 BED	5 m^3
1603	2 BED	3 m^3
1604	2 BED	8 m^3
1605	2 BED	8 m^3
1606	2 BED	5 m^3
1607	2 BED	5 m^3
1608	2 BED	8 m^3
LEVEL 17		
1701	2 BED	8 m^3
1702	2 BED	5 m^3
1703	2 BED	3 m^3
1704	2 BED	8 m^3
1705	2 BED	8 m^3
1706	2 BED	5 m^3
1707	2 BED	5 m^3
1708	2 BED	8 m^3
LEVEL 18		
1801	2 BED	8 m^3
1802	2 BED	5 m^3
1803	2 BED	3 m^3
1804	2 BED	8 m^3
1805	2 BED	8 m^3
1806	2 BED	5 m^3
1807	2 BED	5 m^3
1808	2 BED	8 m^3
LEVEL 19		
1901	2 BED	8 m^3
1902	2 BED	5 m^3
1903	2 BED	3 m^3
1904	2 BED	8 m^3
1905	2 BED	8 m^3
1906	2 BED	5 m^3
1907	2 BED	5 m^3
1908	2 BED	8 m^3

RESIDENTIAL STORAGE WITHIN APARTMENT		
UNIT	UNIT TYPE	VOLUME
LEVEL 20		
2001	1 BED	4 m^3
2002	3 BED	5 m^3
2003	3 BED	5 m^3
2004	1 BED	4 m^3
2005	1 BED	4 m^3
2006	3 BED	5 m^3
2007	3 BED	5 m^3
2008	1 BED	4 m^3
LEVEL 21		
2101	2 BED	8 m^3
2102	2 BED	5 m^3
2103	2 BED	3 m^3
2104	2 BED	8 m^3
2105	2 BED	8 m^3
2106	2 BED	5 m^3
2107	2 BED	5 m^3
2108	2 BED	8 m^3
LEVEL 22		
2201	2 BED	8 m^3
2202	2 BED	5 m^3
2203	2 BED	3 m^3
2204	2 BED	8 m^3
2205	2 BED	8 m^3
2206	2 BED	5 m^3
2207	2 BED	5 m^3
2208	2 BED	8 m^3
LEVEL 23		
2301	2 BED	8 m^3
2302	2 BED	5 m^3
2303	2 BED	3 m^3
2304	2 BED	8 m^3
2305	2 BED	8 m^3
2306	2 BED	5 m^3
2307	2 BED	5 m^3
2308	2 BED	8 m^3
LEVEL 24		
2401	2 BED	8 m^3
2402	2 BED	5 m^3
2403	2 BED	3 m^3
2404	2 BED	8 m^3
2405	2 BED	8 m^3
2406	2 BED	5 m^3
2407	2 BED	5 m^3
2408	2 BED	8 m^3

RESIDENTIAL STORAGE WITHIN APARTMENT		
UNIT	UNIT TYPE	VOLUME
LEVEL 25		
2501	1 BED	4 m^3
2502	3 BED	5 m^3
2503	3 BED	5 m^3
2504	1 BED	4 m^3
2505	1 BED	4 m^3
2506	3 BED	5 m^3
2507	3 BED	5 m^3
2508	1 BED	4 m^3
LEVEL 26		
2601	2 BED	8 m^3
2602	2 BED	5 m^3
2603	2 BED	3 m^3
2604	2 BED	8 m^3
2605	2 BED	8 m^3
2606	2 BED	5 m^3
2607	2 BED	5 m^3
2608	2 BED	8 m^3
LEVEL 27		
2701	2 BED	8 m^3
2702	2 BED	5 m^3
2703	2 BED	3 m^3
2704	2 BED	8 m^3
2705	2 BED	8 m^3
2706	2 BED	5 m^3
2707	2 BED	5 m^3
2708	2 BED	8 m^3
LEVEL 28		
2801	2 BED	8 m^3
2802	2 BED	5 m^3
2803	2 BED	3 m^3
2804	2 BED	8 m^3
2805	2 BED	8 m^3
2806	2 BED	5 m^3
2807	2 BED	5 m^3
2808	2 BED	8 m^3
LEVEL 29		
2901	2 BED	8 m^3
2902	2 BED	5 m^3
2903	2 BED	3 m^3
2904	2 BED	8 m^3
2905	2 BED	8 m^3
2906	2 BED	5 m^3
2907	2 BED	5 m^3
2908	2 BED	8 m^3

RESIDENTIAL STORAGE WITHIN APARTMENT		
UNIT	UNIT TYPE	VOLUME
LEVEL 30		
3001	1 BED	4 m^3
3002	3 BED	5 m^3
3003	3 BED	5 m^3
3004	1 BED	4 m^3
3005	1 BED	4 m^3
3006	3 BED	5 m^3
3007	3 BED	5 m^3
3008	1 BED	4 m^3
LEVEL 31		
3101	2 BED	8 m^3
3102	2 BED	5 m^3
3103	2 BED	3 m^3
3104	2 BED	8 m^3
3105	2 BED	8 m^3
3106	2 BED	5 m^3
3107	2 BED	5 m^3
3108	2 BED	8 m^3
LEVEL 32		
3012	2 BED	5 m^3
3201	2 BED	8 m^3
3203	2 BED	3 m^3
3204	2 BED	8 m^3
3205	2 BED	8 m^3
3206	4 BED	16 m^3
LEVEL 33		
3013	2 BED	5 m^3
3301	2 BED	8 m^3
3303	2 BED	3 m^3
3304	2 BED	8 m^3
3305	2 BED	8 m^3
3306	4 BED	16 m^3
LEVEL 34		
3018	2 BED	5 m^3
3401	2 BED	8 m^3
3403	2 BED	3 m^3
3404	2 BED	8 m^3
3405	2 BED	8 m^3
3406	4 BED	16 m^3

TOTAL APARTMENTS = 194

APARTMENTS ACHIEVING ADG STORAGE REQUIREMENT INTERNALLY = **68**

MINIMUM NUMBER OF BASEMENT STORAGE CAGE REQUIRED = **126**

RESIDENTIAL STORAGE IN BASEMENTS	
VOLUME	NO. OF STORAGE CAGES
4 m^3	92
5 m^3	21
5+ m^3	36

TOTAL: 149

PRELIMINARY

Revisions
P1 05.10.18 DRAFT DA NE
P2 24.10.18 BACKGROUND ISSUE MG

24/10/2018 5:31:02 PM

Project ELIZABETH STREET
26 ELIZABETH STREET
LIVERPOOL

Drawing STORAGE SCHEDULE

Project No 218004

Date 14/09/18

Author YY

Scale: @ A1

Drawing No. TP06.21 P2

rothelowman

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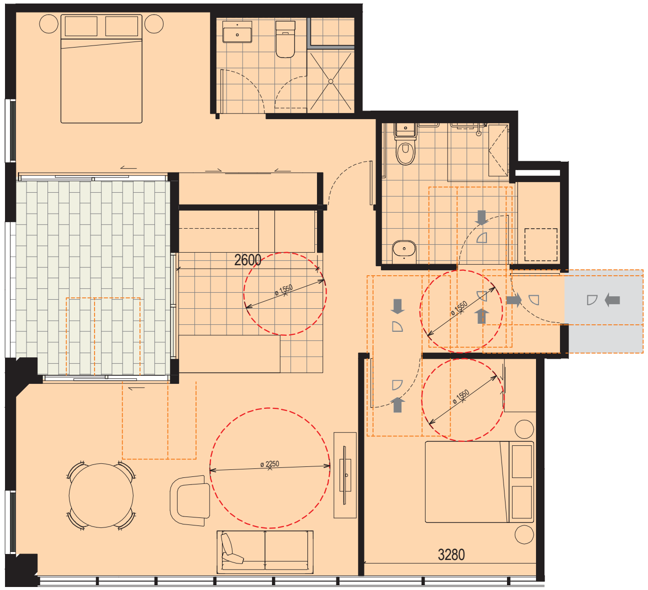
1 TP00.06 TYPE A - 2 BED (PRE-ADAPTION)
SCALE 1 : 50

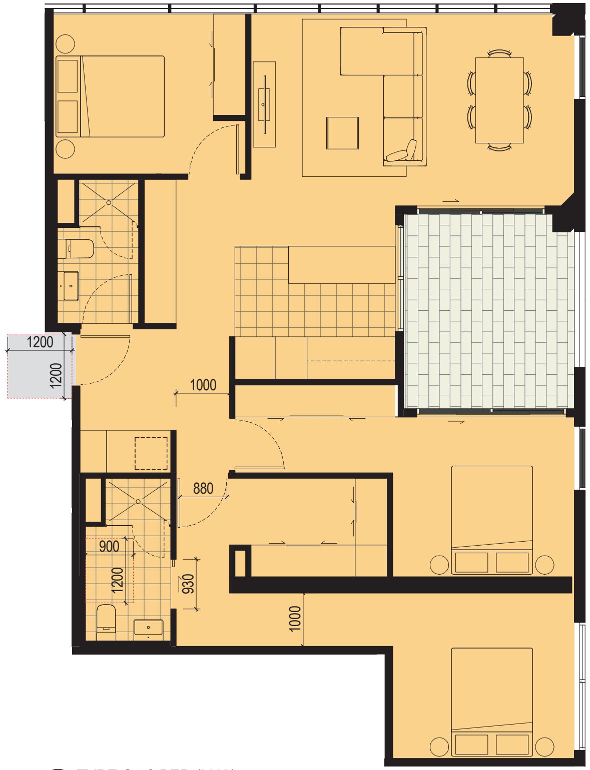
REFER TO ACCESSIBILITY REPORT FOR DETAILED DESCRIPTION



2 TP00.06 TYPE A - 2 BED (POST-ADAPTION)
SCALE 1 : 50

REFER TO ACCESSIBILITY REPORT FOR DETAILED DESCRIPTION

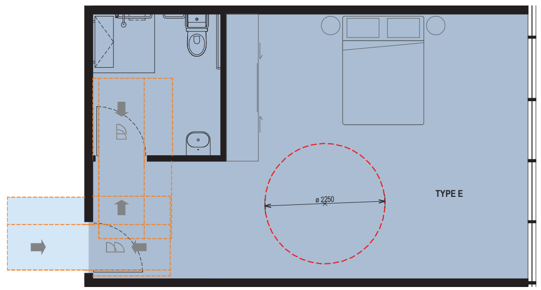
ADAPTABLE APARTMENTS SCHEDULE	
LEVEL	UNIT NUMBER
LEVEL 11	1103
LEVEL 12	1203
LEVEL 13	1303
LEVEL 14	1403
LEVEL 16	1603
LEVEL 17	1703
LEVEL 18	1803
LEVEL 19	1903
LEVEL 21	2103
LEVEL 22	2203
LEVEL 23	2303
LEVEL 24	2403
LEVEL 26	2603
LEVEL 27	2703
LEVEL 28	2803
LEVEL 29	2903
LEVEL 31	3103
LEVEL 32	3203
LEVEL 33	3303
LEVEL 34	3403
TOTAL: 20	



3 TP00.06 TYPE C - 3 BED (LHA)
SCALE 1 : 50

LHA APARTMENTS SCHEDULE	
UNIT NUMBER	UNIT TYPE
LEVEL 10	
1002	TYPE C
1003	TYPE C
1006	TYPE C
1007	TYPE C
LEVEL 15	
1502	TYPE C
1503	TYPE C
1506	TYPE C
1507	TYPE C
LEVEL 20	
2002	TYPE C
2003	TYPE C
2006	TYPE C
2007	TYPE C
LEVEL 25	
2502	TYPE C
2503	TYPE C
2506	TYPE C
2507	TYPE C
LEVEL 30	
3002	TYPE C
3003	TYPE C
3006	TYPE C
3007	TYPE C
TOTAL: 20	

NOTE: ALL ACCESSIBLE APARTMENTS COUNTED AS LHA



4 TP00.06 HOTEL TYPE E (ACCESSIBLE)
SCALE 1 : 50

ACCESSIBLE HOTEL ROOM...	
LEVEL	ROOM TYPE
LEVEL 5	TYPE E
LEVEL 5	TYPE E
LEVEL 6	TYPE E
LEVEL 6	TYPE E
LEVEL 7	TYPE E
LEVEL 7	TYPE E
TOTAL: 6	

PRELIMINARY

Revisions

P2	27.08.18	ISSUE FOR INFORMATION	MG
P3	31.08.18	ISSUE FOR INFORMATION	MG
P4	18.09.18	ACCESS ISSUE	NE
P5	05.10.18	DRAFT DA	NE
P6	24.10.18	BACKGROUND ISSUE	MG

24/10/2018 5:31:11 PM

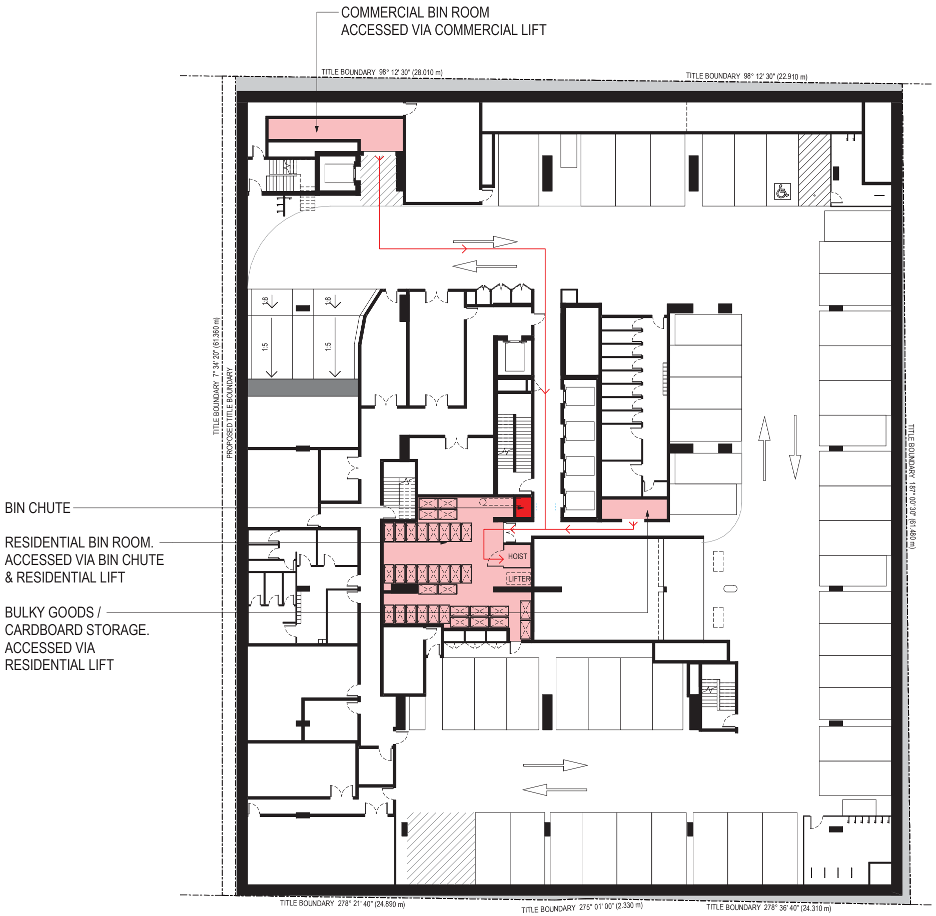
Project **ELIZABETH STREET**

26 ELIZABETH STREET
LIVERPOOL

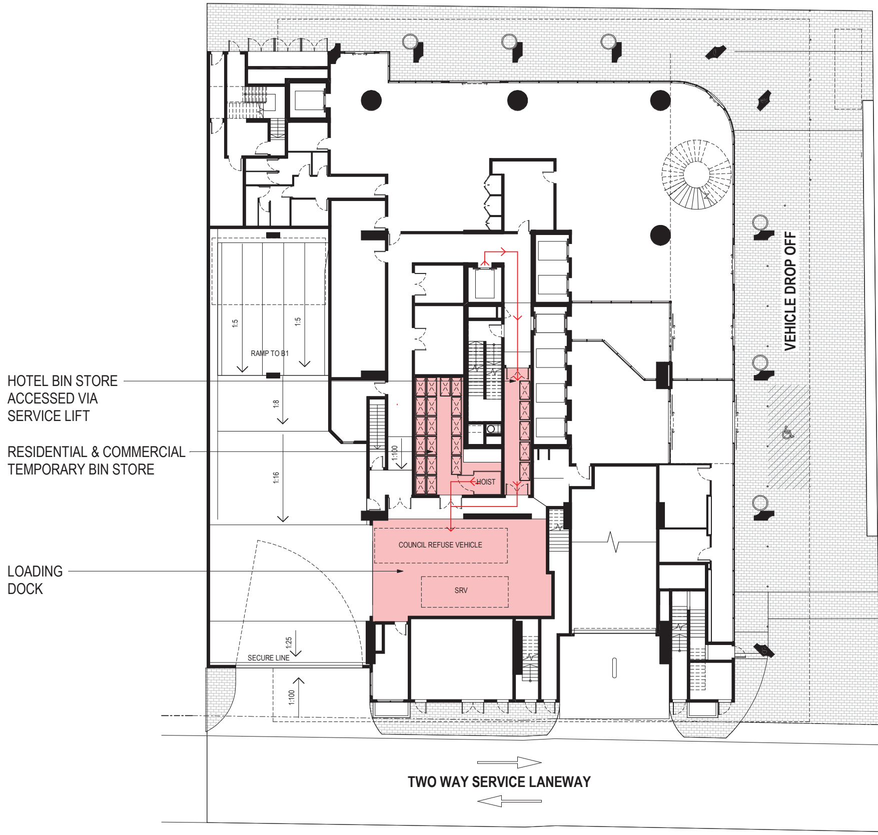
Drawing **ADAPTABLE, LHA COMPLIANT & ACCESSIBLE PLANS**

Project No **218004** Date **17/08/18** Author **YY** Scale: @ A1 **1 : 50** Drawing No. **TP06.30 P6**

rothelowman
Brisbane, Melbourne, Sydney
www.rothelowman.com.au



1 TP03.01 BASEMENT 1
SCALE 1 : 200



2 TP00.06 GROUND
SCALE 1 : 200

NOTE: REFER TO WASTE ENGINEER'S REPORT FOR FURTHER DETAIL.

PRELIMINARY

Revisions

P1	05.10.18	DRAFT DA	NE
P2	24.10.18	BACKGROUND ISSUE	MG

24/10/2018 5:31:17 PM

Project: ELIZABETH STREET
26 ELIZABETH STREET
LIVERPOOL

Drawing: WASTE MANAGEMENT STRATEGY

Project No: 218004

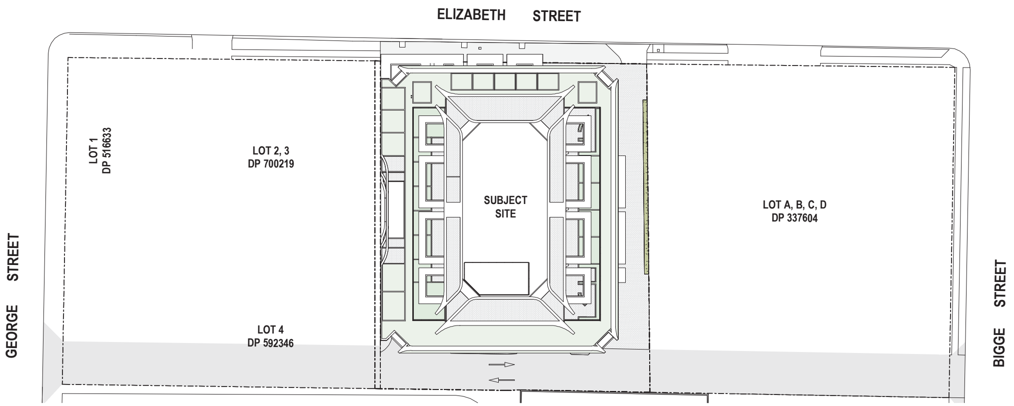
Date: 13/09/18

Author: NE

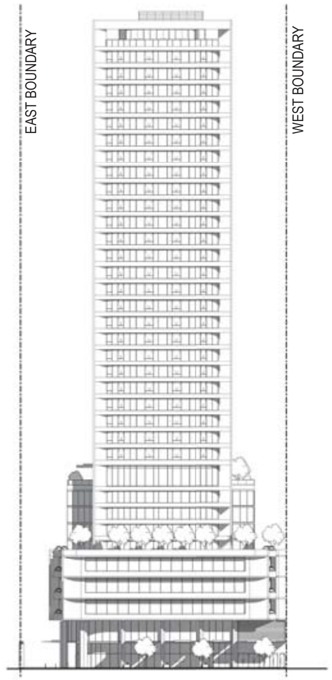
Scale: @ A1: 1 : 200

Drawing No.: TP06.41 P2

rothelowman
Brisbane, Melbourne, Sydney
www.rothelowman.com.au



1 SITE PLAN
TP00.06 SCALE 1 : 500



2 NORTH ELEVATION
SCALE 1 : 500

3 EAST ELEVATION
SCALE 1 : 500

PRELIMINARY

Revisions

P1	05.10.18	DRAFT DA	NE
P2	24.10.18	BACKGROUND ISSUE	MG

24/10/2018 5:32:01 PM

Project **ELIZABETH STREET**
Drawing **NOTIFICATION PLAN**
Project No **218004**
Date **09/11/18**
Author **YY**
Scale: @ A1 **1 : 500**
Drawing No. **TP07.01 P2**

26 ELIZABETH STREET
LIVERPOOL

rothelowman

Brisbane, Melbourne, Sydney
www.rothelowman.com.au

APPENDIX B

NSW Office of Water Groundwater Bore Search

All Groundwater

GROUND WATER

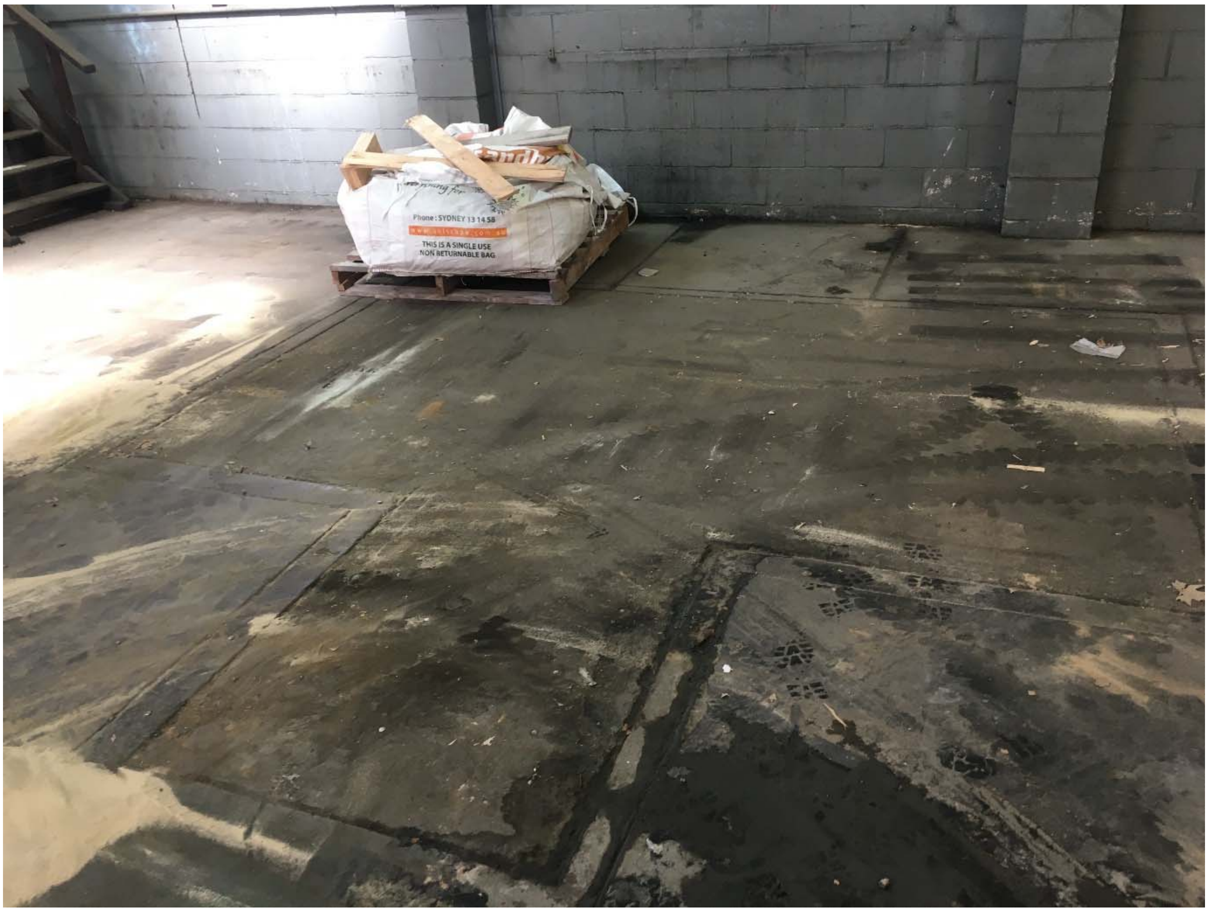
bookmark this page

All data times are Eastern Standard Time

Map | Info

Scale = 1 : 3385 | 150.921, -33.922 | 307818, 6244546, 56

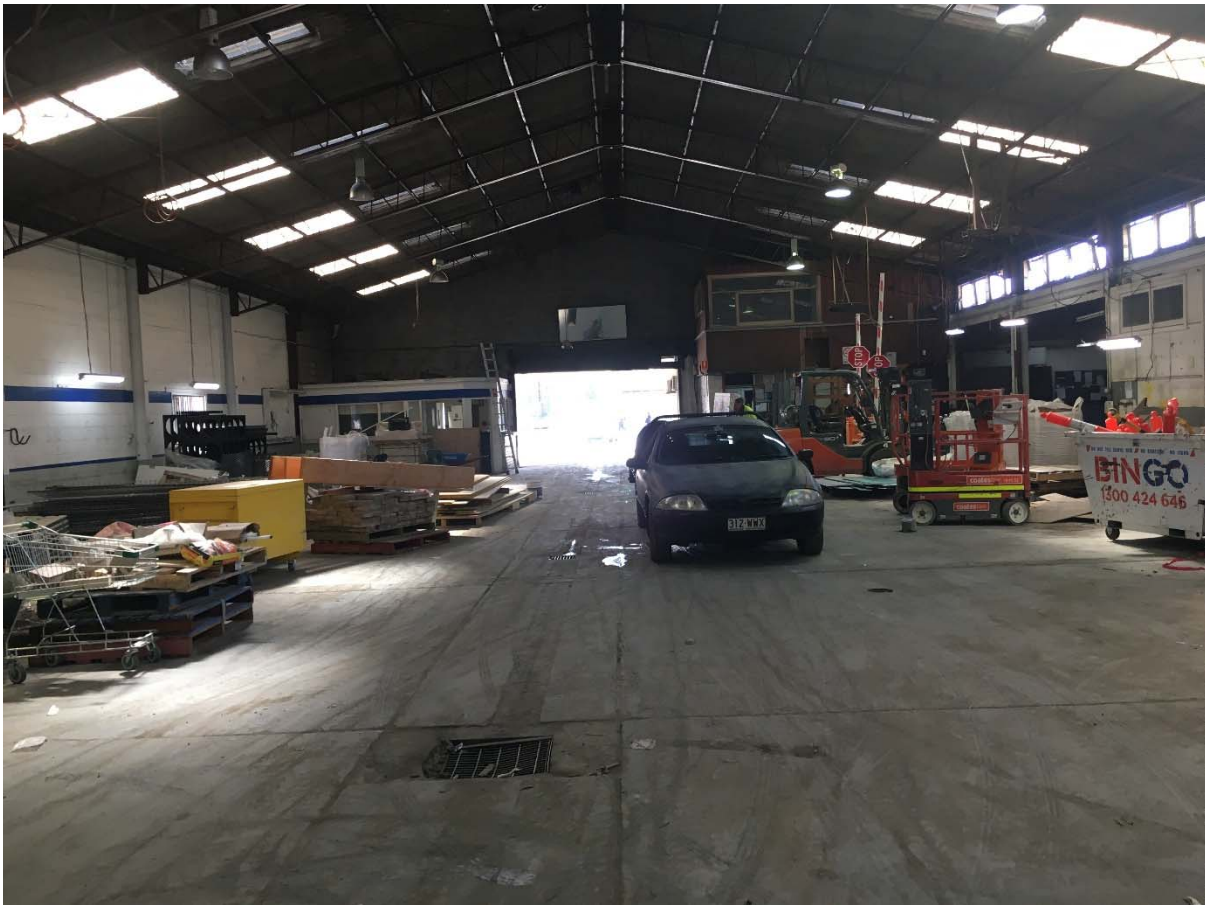
APPENDIX C
Site Photographs



Photograph 1: Concrete patched area found at the rear portion of the existing service centre (20 April 2018).

Photograph 2: Broken sheets of potential asbestos in the storage rooms surrounding the car parking (20 April 2018).

Photograph 3: Celling of storage rooms surrounding the car parking (20 April 2018).



Photograph 4: Inside conditions of service centre, looking north (20 April 2018).

Photograph 5: Potential lead paint – roof of service centre (20 April 2018).

Photograph 6: Unwanted construction wastes in the service centre (20 April 2018).

Photograph 7: Overall car parking conditions – facing north (20 April 2018).

APPENDIX D
Historical Property Titles Search

ABN: 36 092 724 251
Ph: 02 9099 7400

Level 14, 135 King Street, Sydney 2000
GPO Box 4103 Sydney NSW 2001
DX 967 Sydney

Report

NSW LRS
(Formerly LPI)

Sydney

Address: 26 Elizabeth Street & Elizabeth Street, Liverpool

Description: - Lot 1 D.P. 217460 & Lot 10 D.P. 621840

As regards Lot 1 D.P. 217460

As regards the part tinted green on the attached Cadastre

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
31.12.1910 (1910 to 1936)	Dacres Fitzherbert Evans (Bank Manager) & his deceased estate	Book 924 No. 385
26.02.1936 (1936 to 1950)	Ernest Albert Groves (Builder Now Gentleman)	Book 1750 No. 771
19.06.1950 (1950 to 1962)	Marjorie Winifred Elkington (Married Woman)	Book 2125 No. 376
27.07.1962 (1962 to 1966)	Peter Howard Warren (Motor Trader)	Book 2623 No. 156 Now Vol 10307 Fol 238

As regards the parts tinted pink on the attached Cadastre

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
	Documentary Title	
23.06.1915 (1915 to 1921)	Hannah Wadsworth (Married Woman)	Book 1061 No. 727
28.02.1921 (1921 to 1953)	Mary Whilimena Hammond (Married Woman) Also known as Mary Wilheimina Hammond	Book 1270 No. 453
10.08.1953 (1953 to 1953)	Henry Leabeater (Carpenter)	Book 2259 No. 445
13.11.1953	Giuseppi Amalfi (Farmer) & his deceased estate Angelo Amalfi (Farmer) Agostino Amalfi (Farmer) Salvatori Amalfi (Farmer) Alfredo Amalfi (Farmer)	Book 2271 No. 606
	Purported Possessory Title	
1950? (1950 to 1963)	Marjorie Winifred Elkington (Married Woman)	
12.03.1963 (1963 to 1966)	Peter Howard Warren (Motor Trader)	Book 2644 No.31 Now Vol 10307 Fol 238

As regards the part tinted blue on the attached Cadastre

Note: Was formerly part of a Reserved Lane 14 feet 6 Inches wide which was claimed by Possessory Application in Primary Application No. 43073 dated 10.05.1966

InfoTrack

ABN: 36 092 724 251
Ph: 02 9099 7400

Level 14, 135 King Street, Sydney 2000
GPO Box 4103 Sydney NSW 2001
DX 967 Sydney

Continued as regards the whole of Lot 1 D.P. 217460

Date of Acquisition and term held	**Registered Proprietor(s) & Occupations where available**	**Reference to Title at Acquisition and sale**
02.12.1966 (1966 to 1976)	Commercial & General Acceptance Limited	Vol 10307 Fol 238
21.05.1976 (1976 to 2015)	Peter Warren (Properties) Pty. Limited	Vol 10307 Fol 238 Now 1/217460
22.09.2015 (2015 to Date)	# Elizabeth Street Partnership Pty Ltd	1/217460

# Denotes Current Registered Proprietor

Easements: - NIL

Leases: -

- 02.12.1966 (K570855) – Peter Howard Warren (Motor Trader) – expired 21.05.1976

ABN: 36 092 724 251
Ph: 02 9099 7400

Level 14, 135 King Street, Sydney 2000
GPO Box 4103 Sydney NSW 2001
DX 967 Sydney

As regards Lot 10 D.P. 621840

As regards the part tinted purple on the attached Cadastre

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
23.06.1915 (1915 to 1921)	Hannah Wadsworth (Married Woman)	Book 1061 No. 727
28.02.1921 (1921 to 1953)	Mary Whilimena Hammond (Married Woman) Also known as Mary Wilheimina Hammond	Book 1270 No. 453
10.08.1953 (1953 to 1953)	Henry Leabeater (Carpenter)	Book 2259 No. 445
13.011.1953 (1953 to 1967)	Giuseppi Amalfi (Farmer) & his deceased estate Angelo Amalfi (Farmer) Agostino Amalfi (Farmer) Salvatori Amalfi (Farmer) Alfredo Amalfi (Farmer)	Book 2271 No. 606
25.09.1967 (1967 to 2015)	Peter Warren (Properties) Pty. Limited	Book 2855 No. 238 Now 10/621840

As regards the part tinted yellow on the attached Cadastre

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
	Documentary Title	
31.12.1910 (1910 to 1936)	Dacres Fitzherbert Evans (Bank Manager) & his deceased estate	Book 924 No. 385
26.02.1936 (1936 to 1950)	Ernest Albert Groves (Builder Now Gentleman)	Book 1750 No. 771
19.06.1950 (1950 to 1962)	Marjorie Winifred Elkington (Married Woman)	Book 2125 No. 376
27.07.1962	Peter Howard Warren (Motor Trader)	Book 2623 No. 156
	Purported Possessory Title	
1955?	Giuseppi Amalfi (Farmer) & his deceased estate Angelo Amalfi (Farmer) Agostino Amalfi (Farmer) Salvatori Amalfi (Farmer) Alfredo Amalfi (Farmer)	
25.09.1967 (1967 to 2015)	Peter Warren (Properties) Pty. Limited	Book 2855 No. 238 Now 10/621840

As regards the part tinted orange on the attached Cadastre

Note: Was formerly part of a Reserved Lane 14 feet 6 Inches wide which was claimed by Possessory Application in Primary Application No. 56264 dated 16.12.1982

ABN: 36 092 724 251
Ph: 02 9099 7400

Level 14, 135 King Street, Sydney 2000
GPO Box 4103 Sydney NSW 2001
DX 967 Sydney

Continued as regards the whole of Lot 10 D.P. 621840

Date of Acquisition and term held	**Registered Proprietor(s) & Occupations where available**	**Reference to Title at Acquisition and sale**
22.09.2015 (2015 to Date)	# Elizabeth Street Partnership Pty Ltd	10/621840

# Denotes Current Registered Proprietor

Easements: - NIL

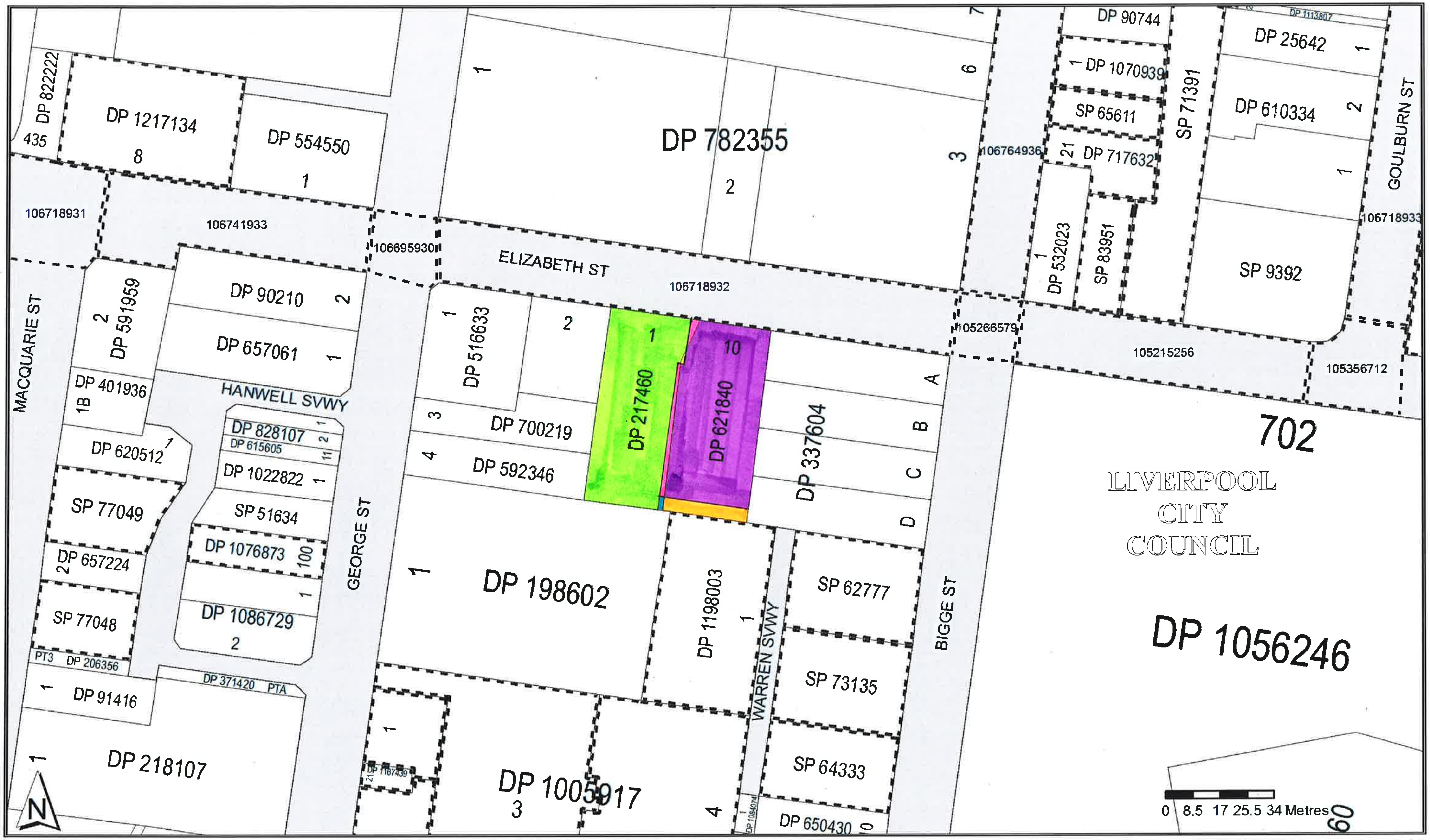
Leases: - NIL

Yours Sincerely
James McDonnell
20 April 2018

Cadastral Records Enquiry Report : Lot 10 DP 621840

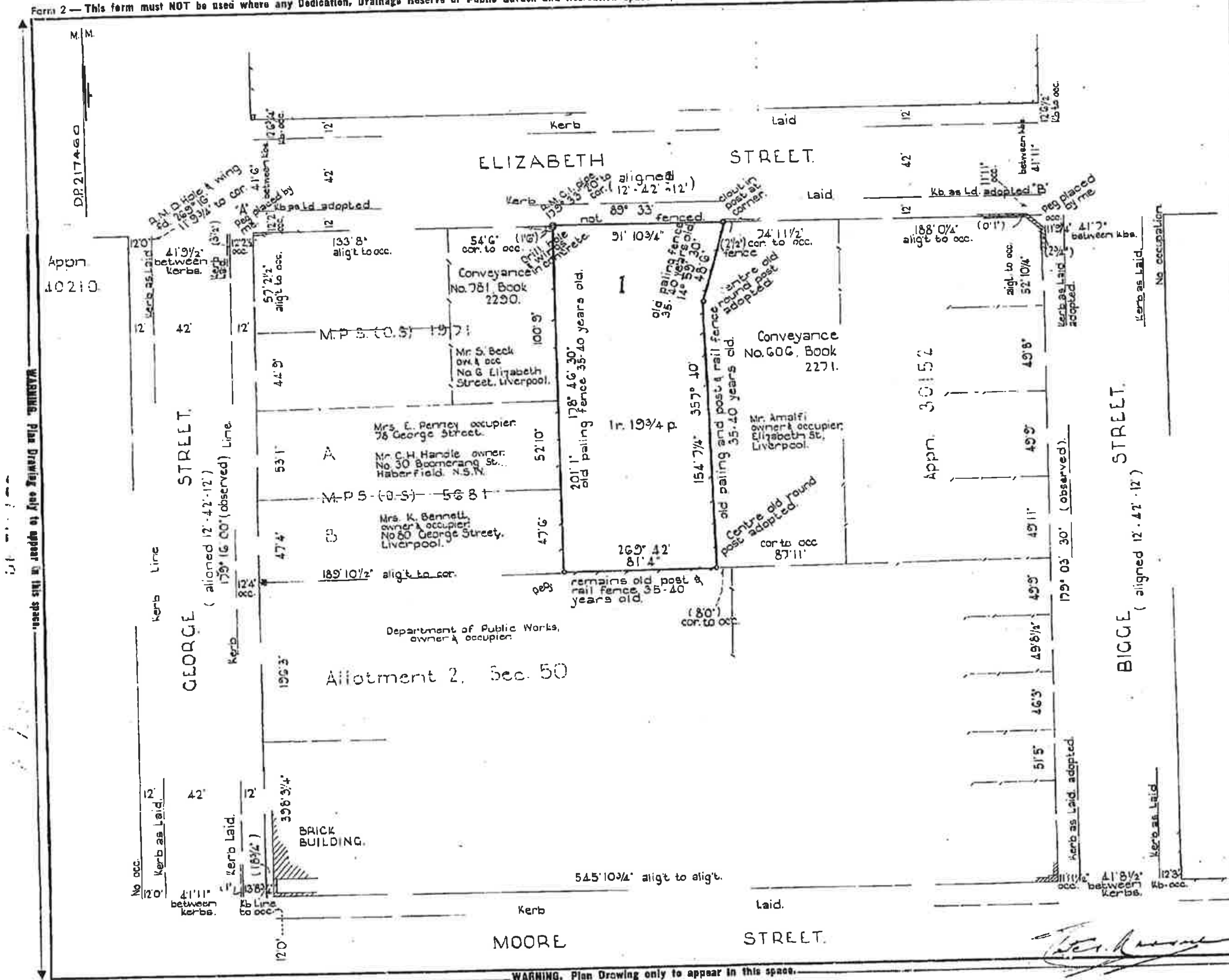
Ref : NOUSER

Locality : LIVERPOOL
LGA : LIVERPOOL
Parish : ST LUKE
County : CUMBERLAND



This information is provided as a searching aid only.Whilst every endeavour is made to ensure that current map, plan and titling information is accurately reflected, the Registrar General cannot guarantee the information provided. For ALL ACTIVITY PRIOR TO SEPTEMBER 2002 you must refer to the RGs Charting and Reference Maps

Form 2 — This form must NOT be used where any Dedication, Drainage Reserve or Public Garden and Recreation Space is provided. — See Form 3. WARNING: GREASING OR FOLDING WILL LEAD TO REJECTION.



WARNING. Plan Drawing only to appear in this space.

1558-74

DP217460

Registered: 4.5.1966

C.A.: ——

Title System: Old System

Purpose: P.A. 43073

Ref. Map: Liverpool Sh. A.

Last Plan do

OFFICE USE ONLY.

PLAN OF Land comprised in part of allotment 1, Section 50, Township of Liverpool.

Scale: 40 feet to an inch

Mun./Shire-City: LIVERPOOL

Locality: LIVERPOOL

Parish: ST. LUKE

County: CUMBERLAND

I, Barry Anthony Homann of 121 George Street, Liverpool (B.A. Homann & Associates), a surveyor registered under the Surveyors Act, 1929, as amended, hereby certify that the survey represented in this plan is accurate and has been made* (1) by me ~~(2) under my immediate supervision~~ in accordance with the Survey Practice Regulations, 1933, and was completed on † 10.8.62

Signature: Barry A. Homann

Surveyor registered under Surveyors Act, 1929, as amended.
Datum Line of Azimuth: 'A'-'B'

Statements of Proposed Easements.

Approved by Council. I hereby certify that the requirements of the Local Government Act, 1919 (other than the requirements for registration of plans), have been complied with by the applicant in relation to the proposed subdivision set out herein.

Subdivision No. .... Date ....

Council Clerk ....

* Strike out either (1) or (2). † Insert date of survey.

CONVERSION TABLE ADDED IN REGISTRAR GENERAL'S DEPARTMENT

DP 217460

FEET	INCHES	METRES
-	1	0.025
-	2 1/2	0.064
-	2 3/4	0.070
-	3 1/2	0.089
1	6	0.457
1	8 3/4	0.527
2	-	0.610
8	-	2.438
11	9 1/4	3.588
11	9 3/4	3.600
11	11	3.632
11	11 1/2	3.645
12	-	3.658
12	2	3.708
12	2 1/2	3.721
12	3	3.734
12	4	3.759
12	6 3/4	3.829
13	8 3/4	4.185
41	6	12.649
41	7	12.675
41	8 1/2	12.713
41	9 1/2	12.738
41	11	12.776
42	-	12.802
44	9	13.640
46	3	14.097
47	4	14.427
47	6	14.478
48	6	14.783
49	8	15.138
49	8 1/2	15.151
49	9	15.164
49	11	15.215
51	5	15.672
52	10	16.104
52	10 1/4	16.110
53	1	16.180
54	6	16.612
57	2 1/2	17.437
74	11 1/2	22.847
81	4	24.790
87	11	26.797
91	10 3/4	28.010
100	9	30.709
133	8	40.742
154	7 1/4	47.123
188	0 1/4	57.309
196	3	59.817
201	1	61.290
398	3 1/4	121.393
545	10 3/4	166.389

AC	RD	P	SQ M
-	1	19 3/4	1511

I, Bruce Richard Davies, Registrar General for New South Wales, certify that this negative is a photograph made as a permanent record of a document in my custody this 27th day of April, 1977

1

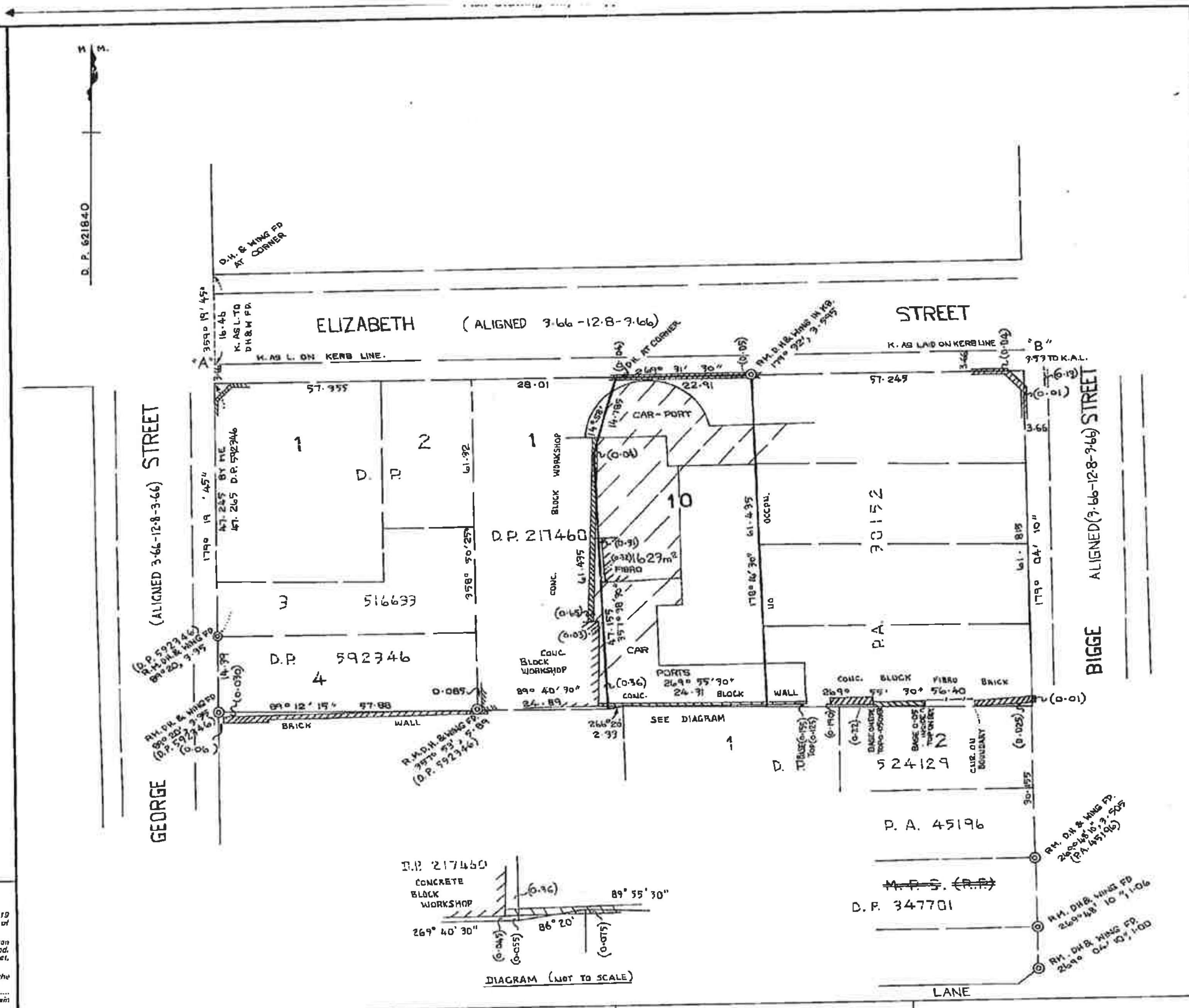
PLAN FORM 2

Signatures and seals only.

STATE BANK OF NEW SOUTH WALES BEING THE MORTGAGEE OF THE LAND WITHIN DESCRIBED HEREBY CONSENTS TO THIS PLAN DATED THIS 5th DAY OF November 1981

For State Bank of New South Wales in exercise of a delegation under Section 12 of State Bank Act 1981

THE COMMON SEAL of PETER WARREN (PROPERTIES) PTY LTD was hereunto affixed in the presence of



D. P.	621840
Registered:	17-11-1982
C.A.:	
Title System:	OLD SYSTEM
Purpose:	P.A. 56264
Ref. Map:	U 9145 - 74
Last Plan:	

PLAN OF PART OF ~~LAND~~ ALLOT 1 OF SEC. 50 ~~IN CONVEYANCE Nº 606 BOOK 2871~~ TOWNSHIP OF LIVERPOOL

Reduction Ratio 1:500 Lengths are in metres.

City	LIVERPOOL
Locality:	LIVERPOOL
Parish:	ST LUKE
County:	CUMBERLAND

~~This is sheet 1 of my plan in ... sheets.~~ (Delete if inapplicable).

I, ALEX GERARD LEBON of B. A. HOMANN & ASSOCIATES PTY LTD LIVERPOOL DX 5011 a surveyor registered under the Surveyors Act, 1929, as amended, hereby certify that the survey represented in this plan is accurate and has been made (2) under my immediate supervision in accordance with the Survey Practice Regulations, 1933, and was completed on MARCH 4TH 1981

Signature
Surveyor registered under Surveyors Act, 1929, as amended.
Datum Line of Azimuth "A"-"B"
*Strike out either (1) or (2). †Insert date of survey.

Panel for use only for statements of intention to dedicate public roads or to create public reserves, drainage reserves, easements or restrictions as to user.

Council Clerk's Certificate

I hereby certify that —
(a) the requirements of the Local Government Act, 1919 (other than the requirements for the registration of plans), and
*(b) the requirements of section 34D of the †Metropolitan Water, Sewerage and Drainage Act, 1924, as amended, †Hunter District Water, Sewerage, and Drainage Act, 1938, as amended
have been complied with by the applicant in relation to the proposed .... (Insert "new road", "subdivision" or "consolidated lot") set out herein
Subdivision No. ....
Date ....
(Signature) .... Council Clerk

*This part of certificate to be deleted where the application is only for a consolidated lot or the opening of a new road or where the land to be subdivided is wholly outside the areas of operations of the Metropolitan Water Sewerage and Drainage Board and the Hunter District Water Board.
†Delete if inapplicable.

SURVEYOR'S REFERENCE: 140 - 875/2386

WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION

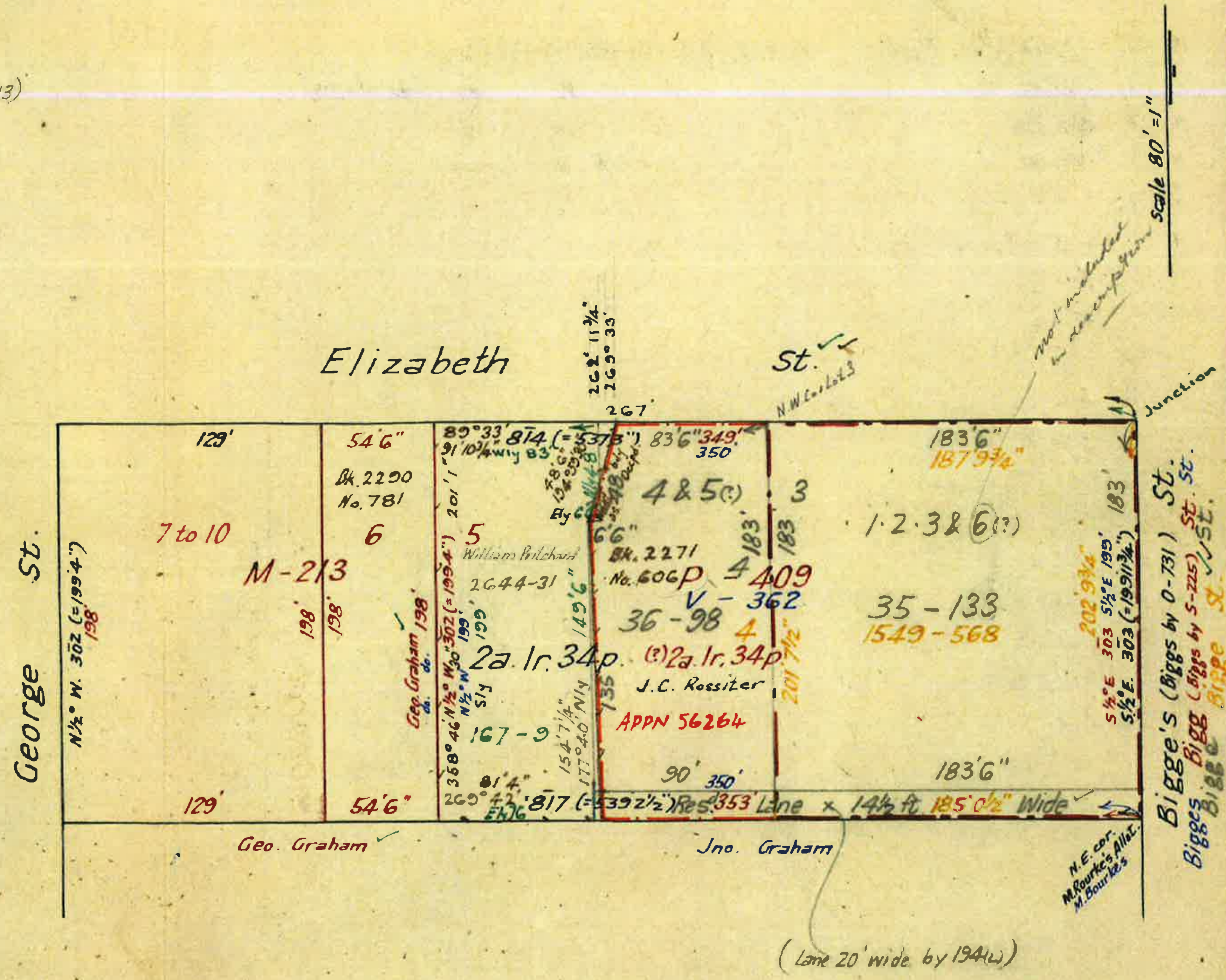
I, Bruce Richard Davies, Under Secretary for Lands and Registrar General for New South Wales, certify that this negative is a photograph made as a permanent record of a document in my custody this day.

17th November, 1982

51507 1.28

APPN No. 30152

Book.	No.	Inst.		
(47) X 1A	72	Gt.	John Rowley 12.4.37	2a 1r 34p (Allot 1 Sec 50) (black) ⌀
X O	731	M		do do do (?ex M-213)
X P	420	D.M		do do do.
X P	409	M	J.Malcolm	do (?) (Pt. do) (red)
X S	225	F.C.	do.	do (?) (do do) (do.)
X V	362	L&R	Rowley & Malcolm to W.Pritchard	(Pt. Allot. 1 Sec. 50) (blue)
✓ 35	133	C	F.K.Oliver	Lots 1.2.3 & 6(?) (pencil)
✓ 35	134	M }		
✓ 55	299	DM }		do do.
✓ 55	872	C	W.Robinson	do do.
✓ 55	873	M	E.Throsby & ors.	do do.
✓ 86	931	C	Throsby's to J.Wheeler	do do.
P.D. Pkt. 4850 X 299	888	C	J.Wheeler i.a.	do do.
X 633	344	M }	i.a.	do do.
X 770	586	DM }		
✓ 770	587	M }		do do.
✓ 997	725	D.M. }		
✓ 1549	568	C	Applicant	{ do do (redesc. as in yellow) (?lane)
✓ Doc.	18	C.S	do	Pt Allot 1 Sec. 50 ?Where Corner Bigge & Elizabeth Sts 185' X 181'




DP 516633
Click to add a point
DP 592346
DP 198602
DP 217460
DP 1198003
DP 621840
DP 337604
SP 73135
SP 62777
DP 782355
DP 532023
SP 83951
DP 717632
SP 71391
DP 1056246

No. 43073

R.P. 2. K 10

Fees:— £ s. d
Lodgment
Certificate
Advt.
Office 215.

14436634
advert KL 124616

New South Wales.

APPLICATION TO BRING LANDS UNDER THE PROVISIONS OF THE REAL PROPERTY ACT, 1900.

FEE SIMPLE.[a]

CAUTION.—Applicants are reminded that by virtue of the provisions of the Crimes Act, 1900, the penalties of perjury are attached to a false declaration concerning any matter or procedure under the Act, and that the utmost care is therefore necessary in framing (or reading over, if the form be filled up by an Attorney) every particular statement herein.

It is further provided by Section 126 of the Real Property Act, 1900, that any applicant procuring a Certificate through any fraud, error, omission, misrepresentation, or misdescription will, notwithstanding the issue of such Certificate remain liable for damages to any person thereby prejudiced. And any person who fraudulently procures, assists in fraudulently procuring, or is privy to the fraudulent procurement of any Certificate of Title, is declared guilty of a misdemeanour, and liable to a penalty not exceeding £500, or imprisonment not exceeding three years; and any Certificate thereby procured is rendered void as between all parties or privies to the fraud.

a This form may be modified to suit the case of a leasehold title.

REGISTRAR-GENERAL NEW-SOUTH-WALES

I[b] ~~We~~ PETER HOWARD WARREN of 100 Hume Highway Liverpool, Motor Trader

do solemnly and sincerely declare, that[c] I am seized for an Estate in fee simple of[d] land situated in the City of Liverpool, Parish of St. Luke and County of Cumberland containing about 1 rood 19¾ perches shown on the plan dated 10th August 1962 prepared by Surveyor Barry Anthony Homann lodged herewith.

Attach. 1 Doc 50 Insp. Liverpool

which land (including all improvements) is of the value of[e] seven thousand pounds (£7,000.) and no more, is[f] part of[g] 2 acres, 1 rood 34 perches originally granted to[h] John Rawley the twelfth day of April 1837 by Crown grant, under the hand of the Governor of the Colony, dated the 6

5.47 f.72.

And I/~~we~~ further declare, that I/~~we~~ verily believe there does not exist any lease or agreement for lease of the said land for any term exceeding a tenancy for one year, or from year to year,[k]

Also, that there does not exist any mortgage, lien, writ of execution, charge or encumbrance, will or settlement, or any deed or writing, contract, or dealing (other than such lease or tenancy as aforesaid), giving any right, claim, or interest in or to the said land, or any part thereof, to any other person than myself/~~ourselves~~[l]

2653 11.215

and I/~~we~~ further declare, that there is no person in possession or occupation of the said land or any part thereof adversely to my/~~our~~ Estate or Interest therein, and that the said land is now[m] in the occupation of myself

and that the owners and occupiers of adjacent lands are as follows[n]:—

	State whether on North, South, East, or West.	Name.	State whether owner or occupier.	Address.
1		Council		
2	EAST	Mr. G. Amalfi	owner & Occupier	2 Elizabeth Street, Liverpool
	~~SOUTH~~	~~Dept of Public Works~~	~~owner & Occupier~~	~~Bridge Street, Sydney~~
3-4	WEST ~~EAST~~	S. & K.L. Beck	owners & Occupier	6 Elizabeth Street Liverpool
5	"	Mrs. E. Penney	Occupier	78 George Street, Liverpool
6	"	Chandson Pty. Ltd.	Owner	30 Boomerang Street Haberfield
7	"	Mrs. K. Bennett	owner & Occupier	80 George Street, Liverpool
8		Angelo Amalfi	Special 813. 63/178198.	16 Moore St Liverpool
9		Agostino Amalfi		29 Nagle St
10		Salvatore Amalfi		96 Boundary Rd
11		Alfredo Amalfi		353 Belmore Rd Riverwood

Cert. of T., issued Vol. 1030 Fol. 238 Dated 10 MAY 1966

b Here state Christian and surname (or names) in full with postal address and occupation.

c "I am" or if the declaration is made by an attorney "C.D. of is" (as the case may be).

d Here give description of the property in full. If the land is shown on a plan lodged with the application or is fully described in a deed, it will be sufficient to insert a reference to the area, town, parish, and county and words indicating that the land is shown on the plan or described in the deed in question. The application may include an appurtenant easement expressly created by an instrument not registered under the Real Property Act, 1900 (see section 14A). Unless the Registrar-General has previously dispensed with a plan of survey, an accurate plan, prepared and certified by a surveyor registered under the Surveyors Act, must accompany the application. If there be any rights of way or other rights or easements affecting the premises the particulars should be stated. If the space for description be insufficient, it may be completed by annexure which must however be identified as part of the declaration, by memorandum signed by the declarant and attesting officer.

e The full improved value should be stated.

f State whether "the whole" or "part."

g Insert allotment with reference in number and section on plan, if any, or if not, number of acres granted.

h Name of Grantee.

k If there be any Lease, add the words "except as follows" and insert particulars thereof.

l If there be any mortgage, lien, etc., add the words "except as follows" and insert particulars thereof.

m Insert "unoccupied" or "in the occupation of" adding names and addresses of tenants in full. State also nature of tenancy, if not under some lease before mentioned. When the applicant is not in actual occupation, but has a caretaker or manager in occupation, the name of such caretaker or manager should be stated, together with the nature of his occupancy.

n Here insert names and residences of adjacent owners and occupiers on all sides.

o The declaration may be qualified to the extent to which Applicant's title has been previously passed by the Registrar General by inserting the words "Commencing with Conveyance dated .... registered ...." or as the case may be. Otherwise all documents from the Crown Grant onwards must be entered in the Schedule.

p If there be any exception add the words "except as follows" and insert necessary particulars.

r If made in New South Wales this declaration must be attested by the Registrar General or Deputy, or by a Notary Public, or by a Justice of the Peace, or Commissioner for Affidavits. If made outside the State it should be made according to the law of the State where made, before a person authorised by that law to take declarations. If the signature be by mark, the attestation must state that the document was read over to the declarant, and that he appeared fully to understand the contents. This applies also to the subjoined direction, particularly if a different person be nominated to receive certificate.

And I/~~we~~ further declare, that the annexed Schedule, to which my/~~our~~ signature is/~~are~~ affixed, and which is to be taken as part of this Declaration, contains a full and correct list ° commencing with Crown Grant dated 12.4. 1837 No.183 Fol 78 of all settlements, deeds, documents, or instruments, maps, plans and papers relating to the land comprised in this application, so far as I/~~we~~ have any means of ascertaining the same, distinguishing such as being in my/~~our~~ possession or under my/~~our~~ control, are herewith lodged and indicating where or with whom, so far as known to me/~~us~~, any others thereof are deposited. Also, that there does not exist any fact or circumstance whatever material to the title, which is not hereby fully and fairly disclosed to the utmost extent of my/~~our~~ knowledge, information, and belief; and that there is not, to my/~~our~~ knowledge and belief, any action or suit pending affecting the said land, nor any person who has or claims any estate, right, title or interest therein, or in any part thereof, otherwise than by virtue and to the extent of some lease or tenancy hereby fully disclosed p

And I/~~we~~ make this solemn Declaration, conscientiously believing the same to be true.

DATED at LIVERPOOL this twelfth day of March 19 63

(RULE UP ALL BLANKS BEFORE SIGNING.)

Made and subscribed by the abovenamed Peter Howard Warren this 12th day of March 1963 in the presence of r Wayne Dixie [signature] Solicitor Liverpool

Signature of Applicant [signature]

Re-made and subscribed by the abovenamed Peter Howard Warren this 16th day of October 1964 in the presence of [signature] J.P. a Justice of the Peace

To the Registrar-General,—

I/~~we~~ Peter Howard Warren

the above declarant, do hereby apply to have the land described in the above declaration brought under the provisions of the Real Property Act, and request you to issue the Certificate of Title in the name of s myself

s If to Applicant, say "myself"; if to other person write name of full length, with postal address and occupation. If to two or more, state whether as joint tenants or tenants in common; if as tenants in common state shares. If to an infant, the age should be stated, and verified by Certificate of Birth, or by Statutory Declaration. If to a married woman, the name of the husband together with his postal address and occupation, should be stated.

DATED at Liverpool this twelfth day of March 1963.

Witness to Signature—

[signature] J.P.

(Signature of Applicant) [signature]

*N.B.—The Schedule below and Certificate indorsed on fourth page should be also signed.

In no case can any alterations, however trifling, be allowed to be made after the application has been once declared, unless all the parties re-sign and re-declare the same. If it is discovered that any alterations are necessary, the applicant may make a statutory declaration setting out in what manner he desires the application to be altered, which declaration will then (unless the Registrar General considers that a fresh application ought to be made) be read as one with the application.

(RULE UP ALL BLANKS BEFORE SIGNING.)

SCHEDULE REFERRED TO.*

(TO BE SIGNED BY APPLICANT IMMEDIATELY BELOW THE LAST DOCUMENT SCHEDULED.)

To include not only Title Deeds, Probates, Letters of Administration, etc., but also the Surveyor's Plan or Statement in lieu thereof.

* For the particulars with which this Schedule must comprise, see concluding part of Declaration, to which particular attention is directed, as any omission or mis-statement will render applicant liable to the penalties of false declaration.

No.	Date.	Nature of Instrument.	Parties.	Registration. Book.	Registration. No.	For Office use only. By whom Produced.
1	12.4.1837	Grant	Crown to John Rowley ~~as to one part~~ As to one part No. 183 Fol, 78			
2	8.12.1854		Certificate of redemption of quit rent. (endorsed on Doc 1)			
3	25.4.39	Mtge.	John Rowley to Peter William Plomer	O	731	[illegible]
4	27.8.39	Deed Poll	by Peter William Plomer discharge Mortgage	P	420	
5	23.8.39	Mtge.	John Rowley to John Malcolm	P	409	
6	17.6.40	Further Charge	John Rowley to John Malcolm	S	225	

Should any transaction affecting the land in this application be entered into or any alterations in the buildings or fences be made subsequent to the date of the application, but prior to the issue of the Certificate of Title, the Registrar General should be informed immediately, and all documents evidencing such transaction should be lodged.

St 7257—2

SCHEDULE REFERRED TO—(*continued*).*

(TO BE SIGNED BY APPLICANT, IF UTILISED, IMMEDIATELY BELOW THE LAST DOCUMENT SCHEDULED.)

No.	Date.	Nature of Instrument.	Parties.	Registration. Book.	Registration. No.	For Office use only By whom Produced
7.	30 ~~29~~.3.41.	Lease & Rel. (Conv ce)	John Rowley, Sarah Rawley & John Malcdm ~~and~~ to William Pritchard	V	362	DD 22
			The abovementioned documents have been permanently lodged with the Register General with the exception of 2 on 25.2.1865			
8.	5.12.54.	Convey-ance	William Pritchard to Fredrick Kingston Oliver	35	133	✗ ← not affecty.
9.	5.1.55.	"	William Pritchard to Joseph Cartwright Rossiter (Elizabeth widow)	36	98	✓
10.	27.8.64	Probate	of Will of William Pritchard Granted to Mary Pritchard by District Registor of the Court of Probate at Bristol in England.			
11.	29.8.64.		Letters testimonial with will annexed by William Pritchard granted under seal of Bristol District.			
12.	10.1.65.	Letters of Admin.	With Will annexed of Estate of WilliamPritchard granted by supreme court of N.S.W. to Thomas Williams.			
13.	24.2.77.	Convey-ance.	William Spouncer, Louisa Spouncer and Samuel Rampley Fiske	167	9	✓
14	18.3.1909	Probate	of Will of Samuel Rampley ~~Fisher~~ Fiske granted by Supreme Court of New South Wales granted to Alfred Cloke.			
15.	31.13.10	Convey ance	Alfred Cloke to Dacres Fitzherbert Evans.	924	385	✓
16.	4.5.28.	Probate	of Will of Dacres Fitzherbert Evans granted to Una Constance Evans and Doris Janet Evans			
17.	26.2.36	Convey-ance	From Dacres Fitzherbert Evans, Una Constance Evans and Doris Janet Evans to Ernest Albert Groves	1750	771.	✓
18.	19.6.50	"	Ernest Albert Groves to Marjorie Winifred Elkington	2125	376	✓
19.	19.6.50	Mtge.	Marjorie Winifred Elkington to Bank of New South Wales	2125	377	✓
20.	11.6.62.	D/Mtge.	Bank of New South Wales to Marjorie Winifred Elkington	2623	~~186~~ 155	✓
21.	27.7.62	Convey-ance	Marjorie Winifred Elkington to Peter Howard Warren	2623	156	✓
22.	17.3.50	Surveyors	Certificate by E.C. Banks & Company			
23.	10.6.62	Plan	by Surveyor B.A. Homann.			
~~24.~~ 52	12.3.63	Deed (Conve & Confirm)	Marjorie Winifred Elkington to Peter Howard Warren	2644	31	✓
			As to a second part.			
			Documentary title to part of a lane remains in the Estate of William Pritchard by virtue of the abovementioned lease and release registered Book V No. 362.			
			As to a third part.			
24.	5.1.1855	Conveyance	William Pritchard to Joseph Cartwright Rossiter (died 17-5-1885)	36	98	(see above
25.	5.9.1910	Court Order	for sale of Real Estate of J.C.Rossiter (Elizabeth Rossiter – widow – admix)			
26.	11.5.1911	Conveyance	Ethel Elizabeth Burton (formerly Rossiter) (admin d.b.n. est. J.C. Rossiter) to Adam Schell – 2-5-1910 – married 4-3-1911	934	407	✓
27.	23.6.1915	Conveyance	Adam Schell to Hannah Wadsworth	1061	727	✓
28.	3.7.1915	Mortgage	Hannah Wadsworth to F.E. Bray and F.W. Todhunter	1061	733	✓
29.	24.10.1919	Discharge of Mortgage	F.E.Bray and F.W.Todhunter to H. Wadsworth	1169	692	✓
30.	24.10.1919	Mortgage	Hannah Wadsworth to Ann Ralph	1169	693	✓
31.	28.2.~~1922~~ 1921	Conveyance	Hannah Wadsworth to Mary Wilhelmina (al Whilimena) Hammond	1270	453	✓
32.	12.7.1922	Discharge of Mortgage	A. Ralph to H. Wadsworth (1169-693)	1273	936	✓
33.	1.9.1922	Mortgage	M.W.Hammond to (Commrs. of the) Government Savings Bank of N.S.W.	1273	937	✓
34.	31.7.1929	Discharge of Mortgage	(Commrs) Government Savings Bank of N.S.W. to M.W.Hammond	1569	921	✓
35.	31.7.1929	Mortgage	M.W.Hammond to Commonwealth General Assurance Corporation Limited	1569	922	✓
36.	15.9.1941	Discharge of Mortgage	Commonwealth General Assurance Corp.Ltd. to M.W.Hammond	1901	276	✓
37.	15.9.1941	Mortgage	M.W.Hammond to Commonwealth General Assurance Corporation Limited	1901	277	✓

[signature]

☞ See indorsement overleaf.

SCHEDULE REFERRED TO - (continued).

No.	Date	Nature of Instrument	Parties	Registration Book	Registration No.	For Office use only By whom produced
38.	30.6.1948	Discharge of Mortgage	Commonwealth General Assurance Corp. Ltd. to M.W.Hammond — re 1901-277.	2058	596	
39.	10.8.1953	Conveyance	M.W.Hammond to Henry Leabeater	2259	445	
40.	30.7.1953	Mortgage	H.Leabeater to Associated Dominions assurance Society Pty - Limited	2259	446	
41.	13.11.1953	Discharge of Mortgage	Associated Dominions to H.Leabeater	2270	764	
42.	13.11.1953	Conveyance	H. Leabeater to Giuseppe Amalfi, Angelo Amalfi, ~~Agostine~~ Salvatore Amalfi and Alfredo Amalfi and Agostino Amalfi	2271	606	

Recd docs 13, 15, 17, 18, 19, 21, 22, C/Sale, + 5 St. decs
14-3-63

43 4-3-63 Stat Dec. Alfred Charles Collmore
44 11-3-63 " " Charles Thomas Collmore
45 12-3-63 " " Augusta Marie Collmore.
46 12-3-63 " " Mary Scholl
47 6-3-63 " " John Joseph Cullen
48 29-5-62 C/Sale M W Elkington & Peter H Warren

R'cd Docs 13. 15 17-22, 43-48.
Docs 1-2-3-5-6 & 7 = DD/Art 22.
15/3/1963.

49 15/3/63. Stat Decln by Marjorie Winifred Elkington
50 16/3/63 Stat Decln by Ivy Becquet — Galloway & Co
51 16/3/63 Stat Decln by Alfred Becquet. — 29/3/63
52 12/3/63 Conveyance from Marjorie Winifred Elkington to Peter Howard Warren — 2644 - 31
53 27/3/63 Stat Decln by Fred Leslie Barnicoat — Galloway & Co 3/4/63.
54 16/4/63 Stat Decln by Doris May Atchin — " 24/4/63
55 29/8/27 ~~Stat Decln~~ O/C will by Dawes Fitzherbert Evans — Galloway & Co
56 23/3/65 P X Giuseppe Amalfi & ors — [illegible] 24 [illegible]

Read Docs 48, 50 + 51

Gallawargo Co for

12/5/1965

Galloway & Co
17819

N.S.W. 1963

R'O

I certify that the within application is correct for the purposes of the Real Property Act, 1900.†

†Section 117 requires that this Certificate be signed by Applicant or his Solicitor and renders liable any person falsely or negligently certifying, to a penalty not exceeding £50; also, to damages recoverable by parties injured.
If by Solicitor, he should insert:—"And that I am the Solicitor of the within-named Applicant," and should add his own address, to his signature. The signature should be that of the Solicitor himself and not of his firm.

(Signature) [illegible]
Solicitor for applicant [illegible] signature cannot be obtained without [illegible] delay

(RULE UP ALL BLANKS BEFORE SIGNING, EXCEPT SPACE IN SCHEDULE BELOW APPLICANT'S SIGNATURE.)

FEES.

	£	s.	d.
Certificate of Title	2	10	0
Office Copy of Plan (when a Plan is furnished)	1	0	0
Preparation of Plan (when a Plan is not furnished)	1	0	0
Advertisement, unless dispensed with	3	0	0
Lodgment fee	1	0	0

☛ State to whom all correspondence relating to this Application should be sent, with address, as under, viz.:—

Name ~~Messrs. Markham~~ & Geikie Galloway & Co 39 Martin Place Sydney

Occupation Solicitors

Post Town ~~Warwick House, George Street~~, Liverpool.

DP217460

EXTRA FEES

V. C. N. Blight, Government Printer

on receipt No. G457822. 29/7/82.

56264

REGISTRAR GENERAL NEW SOUTH WALES

NEW SOUTH WALES STAMP DUTY $ =06.00

NEW SOUTH WALES

OFFICE USE ONLY

PRIMARY APPLICATION

SECTION 14, REAL PROPERTY ACT, 1900

$

$40 paid

of 11-12-81

56264

CAUTION.—Severe penalties are provided by the Crimes Act, 1900, and the Real Property Act, 1900, for procuring a certificate of title through fraud.

Typewriting and handwriting should be clear, legible and in permanent black non-copying ink. No alterations should be made by erasure; the words rejected must be ruled through and verified by signature or initials in the margin.

(a) Full name and postal address of person or corporation entitled to the land. If a person is entitled, the occupation should also be stated.

(a) PETER WARREN (PROPERTIES) PTY LIMITED a company duly incorporated and having its registered office at 26 Elizabeth Street, Liverpool in the State of New South Wales

herein referred to as the APPLICANT

hereby applies to have the undermentioned land brought under the provisions of the Real Property Act, 1900

(b) Give an adequate description of the land, e.g. "Lot... in Deposited Plan ..." If an appurtenant easement is claimed, the deed creating it should be disclosed and an adequate description of its location should be given; its location should also be shown on the plan. The application should be accompanied by a plan of survey unless the Registrar General has previously dispensed therewith. A plan is not normally required where the application relates to land in a qualified certificate of title; in such case it will be sufficient to describe the land by reference to the volume and folio number of the qualified certificate of title.

(c) Delete whichever is inapplicable.

(d) Insert reference to portion or allotment, or if none, to number of acres granted.

(e) Name of grantee.

All that piece of land situated at LIVERPOOL in the County of CUMBERLAND Parish of ST LUKE being(b)

Lot 10 in Survey Plan of Alex Gerard Lebon dated 4th March 1981 (Surveyors reference: 140-875/2386)

Ser. 47 p. 72

and being ~~the whole~~(c) / part of (d) Allot 1 Sec. 50 granted to (e) John Rowley ~~Particulars not available~~

by Crown grant dated the Twelfth day of April 1837

and requests that the certificate of title issue in the name of

(f) If the certificate of title is required to issue in favour of the applicant, insert "the applicant"; otherwise here insert the full name of the person or corporation in whose name the certificate of title is to issue. In the case of a person, the full postal address and occupation should also be stated. If more than one nominee, state whether as joint tenants or tenants in common. Unless otherwise stated, tenants in common will be presumed to hold in equal shares.

(g) Full name, address and occupation of declarant.

(h) If a lesser estate, alter accordingly.

(i) Delete whichever is inapplicable.

(f) the Applicant

and in support of this application I/We(g)

Peter Howard Warren of 6 Orange Grove Road, Cabramatta, NSW, Company Director

solemnly and sincerely declare that—

1. The applicant is seised for an estate in fee simple(h) of the abovedescribed land.

2. There is no person in possession or occupation of the said land or any part thereof adversely to the estate or interest therein of the applicant.

3. The said land is now (i) occupied by the persons specified in the First Schedule as occupiers. ~~unoccupied.~~

4. There does not exist any lease or agreement for lease of the said land for any term exceeding a tenancy for one year, or from year to year, except as set out in the First Schedule.

5. There does not exist any right of way, right of drainage or other easement or any restrictive covenant affecting the said land, except as disclosed in the First Schedule.

(j) Should any transaction affecting the land in this application be entered into or any alterations to the buildings or fences be made subsequent to the date of the application, but prior to the issue of the certificate of title, the Registrar General should be informed immediately, and all documents evidencing such transaction should be lodged.

6. There does not exist any mortgage, lien, writ of execution, order, charge, encumbrance, will, settlement, deed, writing, contract, or dealing giving any right, claim or interest in the said land, or any part thereof, to any person other than the applicant except as set out in the First Schedule; nor, to the best of my knowledge and belief, is there any action, proceeding or suit pending which affects or could affect the said land, or any person other than the applicant who has or claims any estate, right, title or interest therein, except as disclosed in the First Schedule.(j)

7. There is no resumption or instrument whereby minerals or substrata have been excepted or reserved to any person, except as disclosed in the First Schedule.

(k) The declaration may be qualified, e.g. by inserting the words "commencing with conveyance dated ____ registered Book ____ No. ____" or as the case may be. See also notes on back page hereof.

Cert. of T. issued Vol. 14946 Fol. 113
Dated 16-12-1982

8. The Second Schedule contains a full and correct list(k)

commencing with Mortgage dated 15th September 1941 registered Book 1901 No 277

of all settlements, deeds, documents, instruments, maps, plans and papers relating to the said land so far as I have any means of ascertaining them. All such documents as are in my possession or under my control are lodged herewith; the whereabouts of all other documents listed, so far as is known to me, is stated in such list.

RY 4882 K 1877

9. The applicant has not become bankrupt or assigned his estate for the benefit of creditors.

10. The information shown in the Schedules hereto is to be taken as part of this declaration.

~~11. I have been authorised by power of attorney dated the day of 19~~
~~To make this application on behalf of the applicant, and I have received no notice of revocation of such authority.(l)~~

(l) Delete this clause if inapplicable. The relevant power of attorney or other such authority should be lodged with the application.

I make this solemn declaration conscientiously believing the same to be true and by virtue of the Oaths Act, 1900,(m) and certify this application to be correct for the purposes of the Real Property Act, 1900,(n) and I hereby undertake to notify the Registrar General promptly of any further interest in the said land created after the making of this my declaration and before issue of the certificate of title.

(m) If made outside N.S.W., strike out Oaths Act, 1900 and insert reference to local Act.

(n) Any person falsely or negligently certifying is liable to the penalties provided by section 117 of the Real Property Act, 1900.

Made and subscribed at LIVERPOOL the TWENTY-NINTH day of OCTOBER 1981,

in the presence of

J.P.

Signature of witness

Applicant, or authorised agent of applicant(o)

JOHN STANLEY JONES

Name of witness (BLOCK LETTERS)

A JUSTICE OF THE PEACE

Qualification of witness

(o) This application is a statutory declaration and must be made before a prescribed functionary. Attention is drawn to the penalties provided by law for any false statement therein.

CONSENT OF MORTGAGEE

THE STATE BANK OF NEW SOUTH WALES, being the mortgagee under mortgage registered Book 3095 Number 697, hereby joins in and consents to this application subject to:—

(i) ~~registration of a mortgage under the Real Property Act, 1900 in substitution for such mortgage, OR~~(p) entry on the certificate of title to issue of a notification relating to such mortgage, AND

(ii) delivery to me of the certificate of title.

(p) Delete whichever is inapplicable.

Witness

Mortgagee

For State Bank of New South Wales
In exercise of a delegation under
Section 12 of State Bank Act 1981

FIRST SCHEDULE

PARTICULARS OF SUBSISTING INTERESTS (LEASES, EASEMENTS, MORTGAGES AND OTHER MATTERS REFERRED TO IN CLAUSES 3 TO 7 INCLUSIVE OF DECLARATION)

Full name and address (of occupier, lessee, mortgagee, etc.)	Nature of entitlement ("occupier", "lessee", "mortgagee", etc.)	Particulars of instrument (if any) by which entitlement created(q)
PETER WARREN (PROPERTIES) PTY LIMITED	Owner	Conveyance Book 2855 No 238

(q) Where the whole or any part of the land is occupied by a tenant state also the nature and duration of the tenancy.

SECOND SCHEDULE 56264

(See notes on back page hereof)

DOCUMENTS REFERRED TO IN CLAUSE 8 OF DECLARATION

To be completed by declarant

Documents Nos. hereunder LODGED HEREWITH

Documents Nos. hereunder WHEREABOUTS UNKNOWN

Documents Nos. hereunder PERMANENTLY LODGED

Receipt Nos.

Documents Nos. 1–11 hereunder TO BE LODGED BY: RURAL BANK

DOCUMENTS TO BE LODGED—REQUIRED PRELIMINARY REQUISITION

Docs 1 to 6 to P40

No.	Date	Nature of document	Parties	Registration Book	Registration No.	FOR OFFICE USE ONLY By whom produced
1	15.9.1941	Mortgage	MARY WHILIMENE HAMMOND to COMMONWEALTH GENERAL ASSURANCES CORPORATION LIMITED	1901	277	
2	30.6.1948	Discharge	As above	2058	596	
3	8.4.1953	Stat Dec	MARY WHILIMENE HAMMOND			
4	10.8.1953	Conveyance	MARY WHILIMENE HAMMOND to HENRY LEABEATO	2259	445	
5	20.7.1953	Mortgage	HENRY LEABEATO to ASSOCIATED DOMINIONS ASSURANCE SOCIETY PTY LIMITED	2259	446	
6	13.11.1953	Discharge	As above	2270	764	
7	13.11.1953	Conveyance	HENRY LEABEATO to GUISEPPI AMALFI, ANGELO AMALFI, AGOSTINO AMALFI, SALVATORE AMALFI & ALFREDO AMALFI	2271	606	✓
8	25.9.1967	Conveyance	ANGELO AMALFI, ANGELO AMALFI (as executor of the estate of Guiseppi Amalfi), AGOSTINO AMALFI, SALVATORE AMALFI & ALFREDO AMALFI to PETER WARREN (PROPERTIES) PTY LIMITED	2855	238	
9	3.7.1968	Mortgage	PETER WARREN (PROPERTIES) PTY LIMITED to TOTAL(AUSTRALIA) LIMITED	2893	727	
10	26.4.73	Discharge	as above	3095	696	
11	26.4.73	Mortgage	PETER WARREN (PROPERTIES) PTY LIMITED to RURAL BANK OF NEW SOUTH WALES	3095	697	
Docs 1 to 11 recd			See sheets 1 & 2 15.12.81 [illegible] P27			
12	2.3.1966	Copy of will	G. Amalfi (607336)			
Doc 12 recd see sheet 4 & 5 P27 [illegible] 26/3/82						
13		Letter(2) (copies)	Stamp Duties Office & Liverpool City Council			
Doc 13 recd see sheet 5 & 6 P27 [illegible] 9/9/82						
			cancelled docs 7, 8, 9, 10 sent to archives			
			Docs 1, 2, 4, 5, 6, 11 delivered to State Bk LOC			
			All other docs to remain			
			[illegible] 23/12/82			

If space is insufficient, add annexure sheet(s)

ST 4993 · K 1977

DEPARTMENTAL USE ONLY	TO BE COMPLETED BY LODGING PARTY
PRIMARY APPLICATION 56264	Lodged by Hunt + Hunt
LOT 10 DP621840	Address: 50 Bridge St Ref: MTK
	DX No. 219 Phone No.: 2390711

1623 m²

DEPARTMENTAL USE ONLY

NOTES

Documents to be scheduled

Where an applicant claims an estate in fee simple by virtue of a documentary title the Second Schedule should commence with a good root of title at least thirty years old or with a later deed which has already been accepted by the Registrar General in an earlier application. Clause 8 of the declaration should be suitably amended.

Where the applicant claims title by possession the devolution of the documentary title of the person(s) against whom possession is asserted should be shown in the Second Schedule.

Where the applicant claims the benefit of an appurtenant easement the Second Schedule should contain a reference to:

* the deed by which the grantor of the easement acquired title to the servient tenement, and
* the deed by which the easement was created.

The applicant will be required to establish (e.g. by searches) that the easement has not been determined by surrender, union of tenements or otherwise.

Documents to be lodged

Upon lodgment the application should be accompanied by:

* all deeds and other documents evidencing the devolution of title from the abovementioned commencing point;
  Deeds and other documents which relate to the period prior to the selected commencing point should not be scheduled in or lodged with this application but should be retained in case their subsequent production should be required.
* any abstract(s) of title in the applicant's possession covering the relevant period; and
* searches showing the result of searches in the general register of deeds, the register of causes, writs and orders, the register of resumptions and the bankruptcy registers.

Searches

The searches obtained when the applicant or a predecessor in title acquired the land in the application will suffice provided that they commence with a good root of title at least thirty years old or with a later deed already accepted by the Registrar General in an earlier application and, in either case, have been brought up to date or to a recent date. In the case of an application based on possession the searches should show not only the devolution of the documentary title (which in most cases will need to be traced from the Crown grant) but also the result of searches against the applicant and his predecessors in possession.

Applicants based upon possession

There is available upon request at the Examiners Branch a departmental circular containing directions for the guidance of applicants who claim title by possession.

Destruction of documents lodged with the application

Upon the issue of the certificate of title the Registrar General will as a general rule destroy those documents which exclusively affect the land in the application (and which accordingly will be totally cancelled pursuant to Section 29 (2), Real Property Act, 1900). However, documents which would otherwise be destroyed may be returned upon request to interested persons. The request (in writing) should specify the documents to be returned and should be made before the processing of the application has been completed.

10307238

NEW SOUTH WALES

[redacted]TIFICATE OF TITLE
[redacted]PERTY ACT, 1900, as amended.

Application No.43073

Vol. 10307 Fol. 238

MA

Edition issued 10- 5 -1966

(Page 1) Vol. 10307 Fol. 238

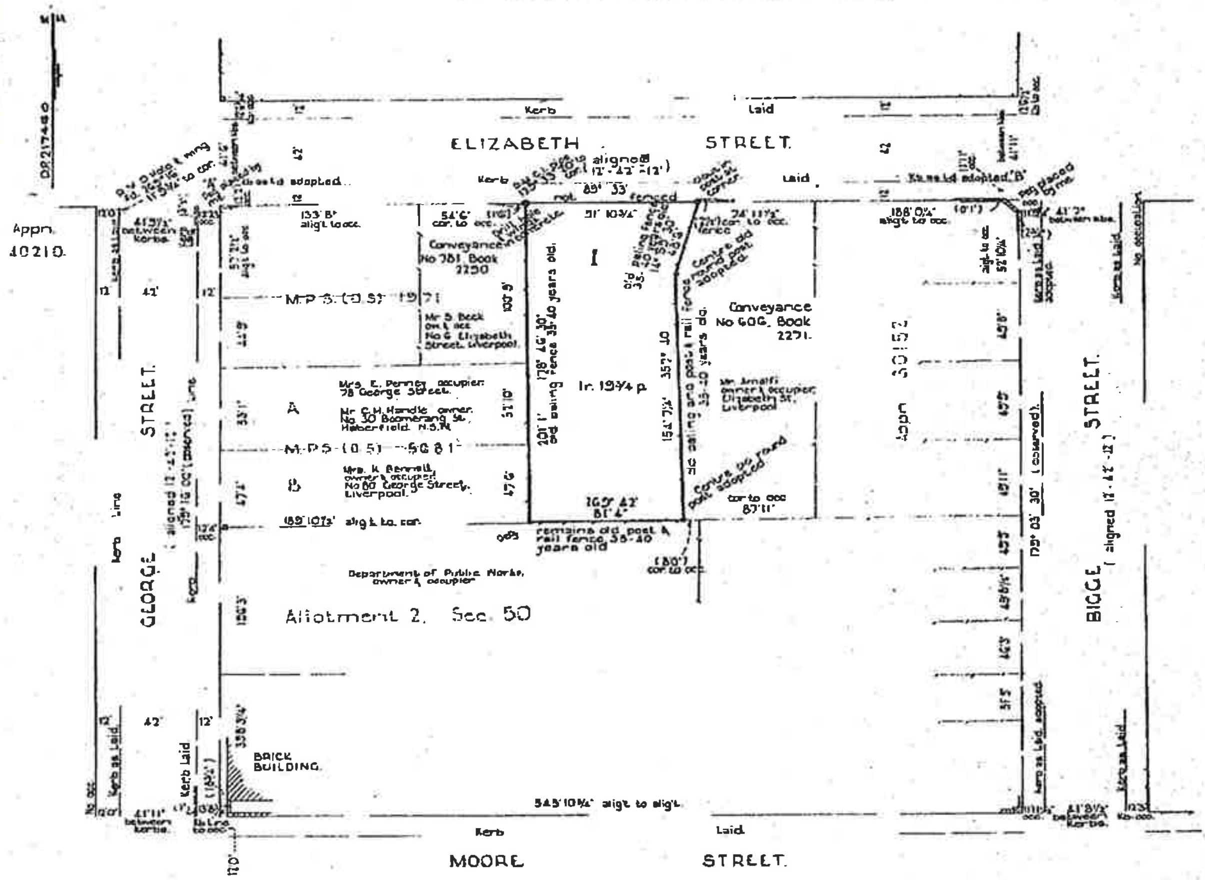
I certify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject nevertheless to such exceptions encumbrances and interests as are shown in the Second Schedule.

CANCELLED

Witness J. Charles

Registrar General.

PLAN SHOWING LOCATION OF LAND SEE AUTO FOLIO



ESTATE AND LAND REFERRED TO

S

Estate in Fee Simple in Lot 1 in Deposited Plan 217460 in the City of Liverpool Parish of St.Luke and County of Cumberland being part of Allotment 1 of Section 50 granted to John Rowley on 12-4-1837.

FIRST SCHEDULE (continued overleaf)

~~PETER HOWARD WARREN, of Liverpool, Motor Trader.~~

Registrar General.

SECOND SCHEDULE (continued overleaf)

GRY

1. Reservations and conditions, if any, contained in the Crown Grant above referred to.

Registrar General.

PERSONS ARE CAUTIONED AGAINST ALTERING OR ADDING TO THIS CERTIFICATE OR ANY NOTIFICATION HEREON

WARNING THIS DOCUMENT MUST NOT BE REMOVED FROM THE LAND TITLES OFFICE

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED

Vol. 10307 Fol 238

P.T. 1, 17 V.C.N. Blight, Government Printer

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	ENTERED	Signature of Registrar-General
~~Commercial & General Acceptance Limited~~	~~Transfer~~	~~K535757~~	~~2-12-1966~~	~~21-12-1966~~	Jankstom
Peter Warren (Properties) Pty. Limited	Transfer	P725982	------	21-5-1976	Jankstom

CANCELLED

SEE AUTO FOLIO

K263719 M
P725982T R.
—83M
Exp lse K570855
Q993822 Plex
Q964305 W/C
-06 Dis
-08 MR
S600014 d/m R

SECOND SCHEDULE (continued)

INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	PARTICULARS	ENTERED	Signature of Registrar-General	CANCELLATION		
~~Mortgage~~	~~K263719~~	~~1-3-1966~~	~~to I.A.C. (Finance) Pty. Limited.~~	~~10-5-1966~~	Jankstom	Discharged	K535755	Jankstom
~~Lease~~	~~K570855~~	~~2-12-1966~~	~~to Peter Howard Warren of Liverpool, Trader~~	~~2-2-1967~~	Jankstom	Expired	21-5-1976	Jankstom
~~Mortgage~~	~~P725983~~	------	~~to A.G.C. (Advances) Limited~~	~~21-5-1976~~	Jankstom	Discharged	Q964306	[illegible]
~~Caveat~~	~~Q943822~~	------	~~by A.G.C. (Advances) Limited~~	~~14-11-1978~~		Withdrawn	Q964305	[illegible]
~~Mortgage~~	~~Q964308~~	------	~~to A.G.C. (Advances) Limited.~~	~~30-11-1978~~		Discharged	S600014	[illegible]

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR-GENERAL ARE CANCELLED

LAND REGISTRY SERVICES

Historical Title

InfoTrack

NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE

11/4/2018 12:19PM

FOLIO: 1/217460

First Title(s): SEE PRIOR TITLE(S)
Prior Title(s): VOL 10307 FOL 238

Recorded	Number	Type of Instrument	C.T. Issue
5/6/1987		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
11/4/1988		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
14/4/1994		AMENDMENT: LOCAL GOVT AREA	
31/1/2003	9335942	CAVEAT	
15/2/2007	AC929274	WITHDRAWAL OF CAVEAT	
6/8/2009	AE880181	MORTGAGE	EDITION 1
26/4/2013	AH688949	DISCHARGE OF MORTGAGE	EDITION 2
14/7/2014	AI733107	CAVEAT	
22/9/2015	AJ574911	WITHDRAWAL OF CAVEAT	
22/9/2015	AJ574912	TRANSFER	
22/9/2015	AJ574913	MORTGAGE	EDITION 3
26/8/2016	AK703807	CAVEAT	
24/4/2017	AM327007	CAVEAT	
20/11/2017	AM897915	WITHDRAWAL OF CAVEAT	
20/11/2017	AM897916	WITHDRAWAL OF CAVEAT	

*** END OF SEARCH ***

Liverpool PRINTED ON 11/4/2018

Received: 11/04/2018 12:19:47

LAND REGISTRY SERVICES Title Search

NEW SOUTH WALES LAND REGISTRY SERVICES - TITLE SEARCH

FOLIO: 1/217460

SEARCH DATE	TIME	EDITION NO	DATE
16/4/2018	1:13 PM	3	22/9/2015

LAND

LOT 1 IN DEPOSITED PLAN 217460
LOCAL GOVERNMENT AREA LIVERPOOL
PARISH OF ST LUKE   COUNTY OF CUMBERLAND
TITLE DIAGRAM DP217460

FIRST SCHEDULE

ELIZABETH STREET PARTNERSHIP PTY LTD   (T AJ574912)

SECOND SCHEDULE (2 NOTIFICATIONS)

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
2 AJ574913 MORTGAGE TO COMMONWEALTH BANK OF AUSTRALIA

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

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Received: 16/04/2018 13:13:26

14946113

[redacted]CATE OF TITLE

NEW SOUTH WALES [redacted]PROPERTY ACT, 1900

First Title Old System

Prior Title P.A. 56264

Vol. 14946 Fol. 113

EDITION ISSUED

16 12 1982

I certify that the person named in the First Schedule is the registered proprietor of an estate in fee simple (or such other estate or interest as is set out below) in the land described subject to the recordings appearing in the Second Schedule and to the provisions of the Real Property Act, 1900.

CANCELLED

Registrar General.

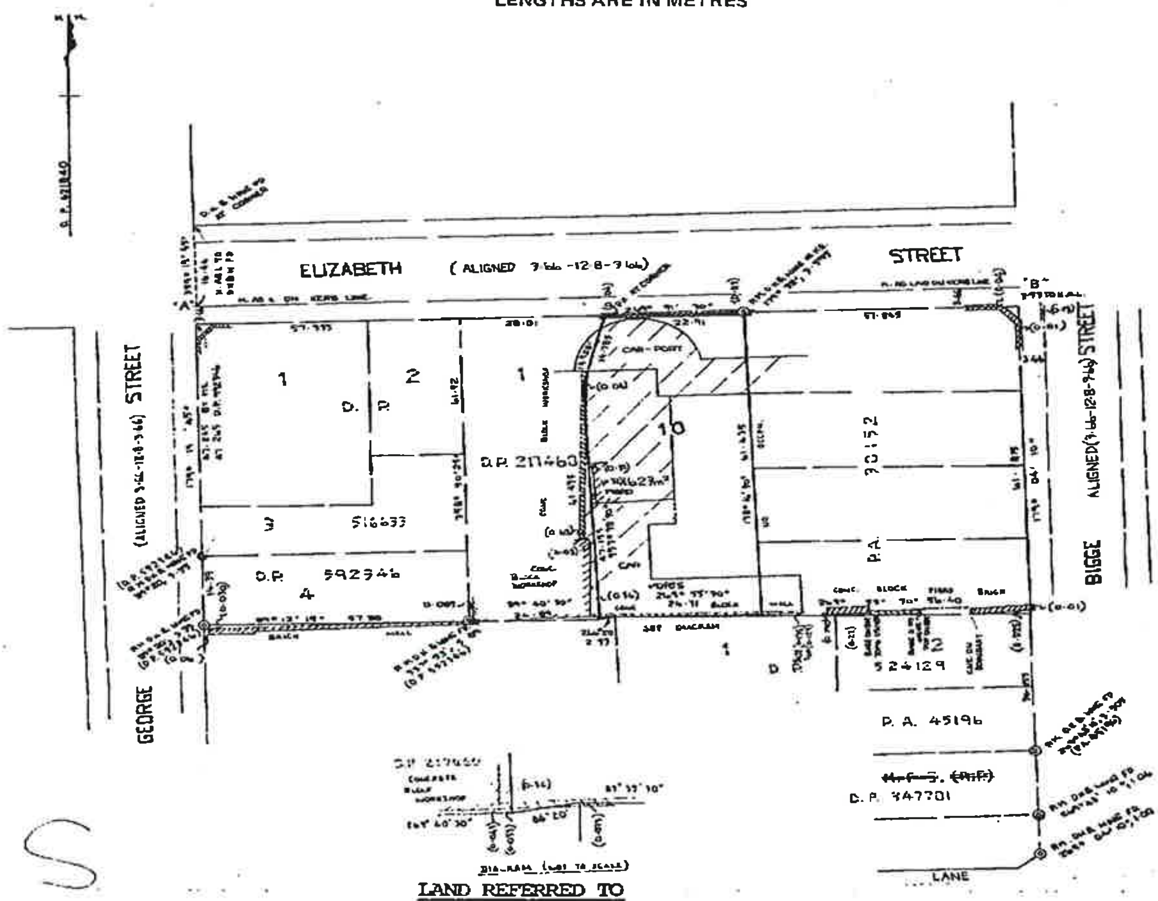
PERSONS ARE CAUTIONED AGAINST ALTERING OR ADDING TO THIS CERTIFICATE OR ANY NOTIFICATION HEREON

(Page 1) Vol. 14946 Fol. 113

PLAN SHOWING LOCATION OF LAND

LENGTHS ARE IN METRES

SEE AUTO FOLIO



LAND REFERRED TO

Lot 10 in Deposited Plan 621840 at Liverpool in the City of Liverpool Parish of St. Luke County of Cumberland.

FIRST SCHEDULE

PETER WARREN (PROPERTIES) PTY. LIMITED.

SECOND SCHEDULE

GRY 1. Reservations and conditions, if any, contained in the Crown Grant.

~~2. Book 3095 No. 697 Mortgage to State Bank of New South Wales.~~ V668763

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED

Vol 14946 Fol 113

99346D 8.81 D. West, Government Printer

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	Registrar General

SECOND SCHEDULE (continued)

PARTICULARS	Registrar General	CANCELLATION
CANCELLED SEE AUTO FOLIO		

NOTATIONS AND UNREGISTERED DEALINGS

V668763 DM/R		

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED

Historical Title

NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE

11/4/2018 12:19PM

FOLIO: 10/621840

First Title(s): SEE PRIOR TITLE(S)
Prior Title(s): VOL 14946 FOL 113

Recorded	Number	Type of Instrument	C.T. Issue
28/3/1988		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
20/9/1988		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
19/5/1994		AMENDMENT: LOCAL GOVT AREA	
31/1/2003	9335942	CAVEAT	
15/2/2007	AC929274	WITHDRAWAL OF CAVEAT	
6/8/2009	AE880181	MORTGAGE	EDITION 1
26/4/2013	AH688960	DISCHARGE OF MORTGAGE	EDITION 2
14/7/2014	AI733107	CAVEAT	
22/9/2015	AJ574911	WITHDRAWAL OF CAVEAT	
22/9/2015	AJ574912	TRANSFER	
22/9/2015	AJ574913	MORTGAGE	EDITION 3
26/8/2016	AK703807	CAVEAT	
24/4/2017	AM327007	CAVEAT	
20/11/2017	AM897915	WITHDRAWAL OF CAVEAT	
20/11/2017	AM897916	WITHDRAWAL OF CAVEAT	

*** END OF SEARCH ***

Liverpool PRINTED ON 11/4/2018

Received: 11/04/2018 12:19:47

LAND REGISTRY SERVICES **Title Search** InfoTrack

NEW SOUTH WALES LAND REGISTRY SERVICES - TITLE SEARCH

FOLIO: 10/621840

SEARCH DATE	TIME	EDITION NO	DATE
16/4/2018	1:13 PM	3	22/9/2015

LAND

LOT 10 IN DEPOSITED PLAN 621840
AT LIVERPOOL
LOCAL GOVERNMENT AREA LIVERPOOL
PARISH OF ST LUKE COUNTY OF CUMBERLAND
TITLE DIAGRAM DP621840

FIRST SCHEDULE

ELIZABETH STREET PARTNERSHIP PTY LTD (T AJ574912)

SECOND SCHEDULE (2 NOTIFICATIONS)

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
2 AJ574913 MORTGAGE TO COMMONWEALTH BANK OF AUSTRALIA

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

Liverpool PRINTED ON 16/4/2018

Received: 16/04/2018 13:13:26

APPENDIX E
SafeWork NSW Dangerous Goods Search

SafeWork NSW

Locked Bag 2906, Lisarow NSW 2252
Customer Experience 13 10 50
ABN 81 913 830 179 | www.safework.nsw.gov.au

Our Ref: D18/109512
Your Ref: Sharon Li

24 April 2018

Attention: Sharon Li
EI Australia
Suite 6.01
55 Miller St
Pyrmont NSW 2009

Dear Ms Li

RE SITE: 26 Elizabeth St Liverpool NSW

I refer to your site search request received by SafeWork NSW on 11 April 2018 requesting information on Storage of Hazardous Chemicals for the above site.

A search of the records held by SafeWork NSW has not located any records pertaining to the above mentioned premises.

For further information or if you have any questions, please call us on 13 10 50 or email licensing@safework.nsw.gov.au

Yours sincerely

Customer Service Officer
Customer Experience - Operations
SafeWork NSW

APPENDIX F
Borehole Logs

BOREHOLE: BH1M

eiaustralia
Contamination | Remediation | Geotechnical

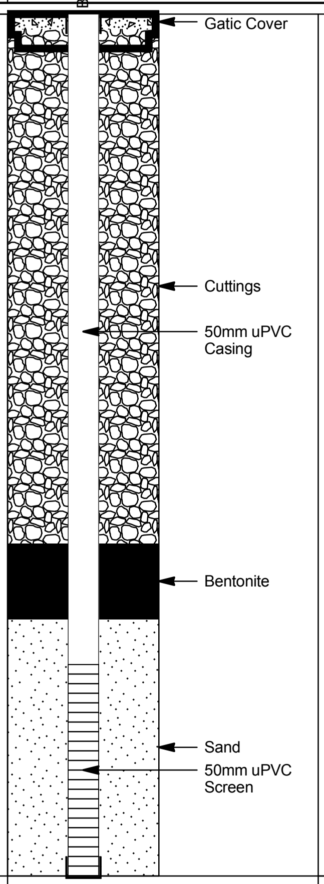
Project	Detailed Site Investigation			Sheet	1 OF 1
Location	26 Elizabeth Street, Liverpool NSW			Date Started	20/4/18
Position	Refer to Figure 2			Date Completed	20/4/18
Job No.	E23796	Contractor	Geosense	Logged SL	Date: 7/5/18
Client	Binah Development Pty Ltd	Drill Rig	Drill Rig	Checked CS	Date: 7/5/18
		Inclination	-90°		

Drilling					Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY
AD/T	-		0	0.10				-	CONCRETE	-	-
				0.30	BH1M_0.2-0.3 PID = 3.8 ppm			-	FILL: SANDY CLAY; medium to high plasticity, with subangular to angular gravels, no odour.		
					BH1M_0.6-0.7 PID = 3 ppm BH1M_1.1-1.2 PID = 4.2 ppm BH1M_1.6-1.7 PID = 3.2 ppm BH1M_2.1-2.2 PID = 4.5 ppm BH1M_2.5-2.6 BH1M_3.0-3.1 PID = 3 ppm BH1M_3.5-3.6 PID = 3.4 ppm BH1M_3.9-4.0 PID = 4 ppm BH1M_4.4-4.5 PID = 1.6 ppm			CI-CH	SILTY CLAY; medium to high plasticity, grey mottled red, no odour.	M	
		▽		4.80	BH1M_4.9-5.0 PID = 1.4 ppm BH1M_5.4-5.5 PID = 1.5 ppm			-	SHALE; extremely weathered, light brown.	-	
				5.70					Hole Terminated at 5.70 m Refusal on Rock. Borehole Converted into Monitoring Well.		

PIEZOMETER DETAILS

ID Static Water Level

BH1M



This borehole log should be read in conjunction with EI Australia's accompanying standard notes.

BOREHOLE: BH2M

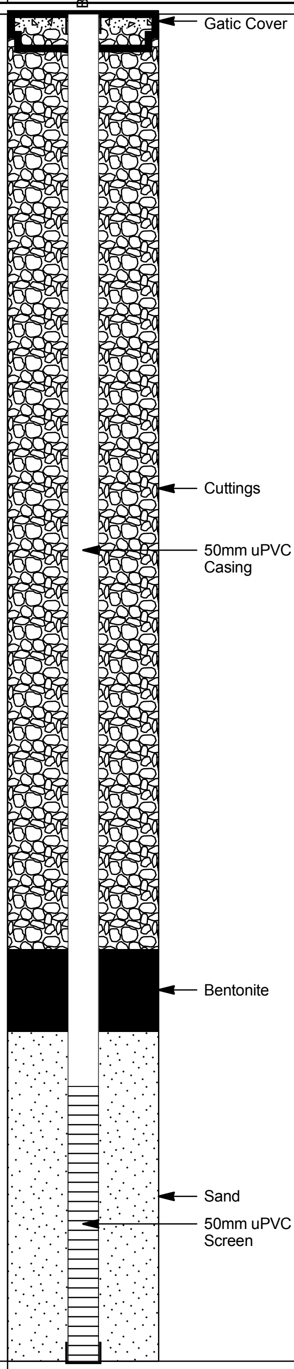
eiaustralia
Contamination | Remediation | Geotechnical

Project	Detailed Site Investigation	Sheet	1 OF 1
Location	26 Elizabeth Street, Liverpool NSW	Date Started	20/4/18
Position	Refer to Figure 2	Date Completed	20/4/18
Job No.	E23796	Logged SL	Date: 7/5/18
Client	Binah Development Pty Ltd	Checked CS	Date: 7/5/18

Contractor: Geosense
Drill Rig: Drill Rig
Inclination: -90°

METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY
AD/T	-		0			-	CONCRETE	-	
				0.50	BH2M_0.2-0.3 PID = 0.7 ppm	-	FILL: SANDY CLAY; medium to high plasticity, with subangular to angular gravels, no odour.	D	
				4.00	BH2M_0.5-0.6 PID = 2.1 ppm; BH2M_0.9-1.0 PID = 2.5 ppm; BH2M_1.4-1.5 PID = 3.4 ppm; BH2M_1.9-2.0 PID = 1.9 ppm; BH2M_2.4-2.5 PID = 3.2 ppm; BH2M_2.9-3.0 PID = 1.8 ppm; BH2M_3.5-3.6 PID = 2.6 ppm	CI-CH	SILTY CLAY; medium to high plasticity, grey mottled red, no odour.		-
				8.00	BH2M_4.0-4.1 PID = 2 ppm; BH2M_4.5-4.6 PID = 1.3 ppm	CL-CI	SILTY CLAY; low to medium plasticity, yellow, no odour.	M	
		▽ (approx. 8.3)		9.80	BH2M_9.7-9.8 PID = 1 ppm	-	SHALE; extremely weathered, light brown.	-	
			10				Hole Terminated at 9.80 m Refusal on Rock. Borehole Converted into Monitoring Well.		

PIEZOMETER DETAILS
ID: BH2M — Static Water Level



This borehole log should be read in conjunction with EI Australia's accompanying standard notes.

BOREHOLE: BH3

eiaustralia
Contamination | Remediation | Geotechnical

Project	Detailed Site Investigation			Sheet	1 OF 1
Location	26 Elizabeth Street, Liverpool NSW			Date Started	20/4/18
Position	Refer to Figure 2			Date Completed	20/4/18
Job No.	E23796	Contractor	Geosense	Logged SL	Date: 7/5/18
Client	Binah Development Pty Ltd	Drill Rig	Drill Rig	Checked CS	Date: 7/5/18
		Inclination	-90°		

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
AD/T	-	GWNE	0.0	0.15				-	CONCRETE	-		
				0.50	BH3_0.2-0.3 PID = 1.8 ppm			-	FILL: SANDY CLAY; medium to high plasticity, with subangular to angular gravels, no odour.	M	-	FILL
			0.5 – 2.0	2.00	BH3_0.9-1.0 PID = 1.7 ppm BH3_1.4-1.5 PID = 3.2 ppm BH3_1.9-2.0 PID = 1.8 ppm			CI-CH	SILTY CLAY; medium to high plasticity, grey mottled red, no odour.	M	-	RESIDUAL SOIL
									Hole Terminated at 2.00 m Target Depth Reached.			

Depth scale: 0.0, 0.5, 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0

This borehole log should be read in conjunction with EI Australia's accompanying standard notes.

BOREHOLE: BH4

Project	Detailed Site Investigation	Sheet	1 OF 1
Location	26 Elizabeth Street, Liverpool NSW	Date Started	20/4/18
Position	Refer to Figure 2	Date Completed	20/4/18
Job No.	E23796	Contractor: EI Australia	Logged SL — Date: 7/5/18
Client	Binah Development Pty Ltd	Drill Rig	Checked CS — Date: 7/5/18
		Inclination: -90°	

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
HA	-	GWNE	0.0	0.15				-	CONCRETE	-		
				0.30	BH4_0.2-0.3 PID = 0.7 ppm			S	FILL: SAND; fine to medium grained, yellow, no odour.	M	-	FILL
			0.5	0.70	BH4_0.5-0.6 PID = 1.1 ppm			-	FILL: SANDY CLAY; medium to high plasticity, with subangular to angular gravels, no odour.			
									Hole Terminated at 0.70 m Refusal on Hard Surface.			

This borehole log should be read in conjunction with EI Australia's accompanying standard notes.

BOREHOLE: BH5

Project	Detailed Site Investigation	Sheet	1 OF 1
Location	26 Elizabeth Street, Liverpool NSW	Date Started	20/4/18
Position	Refer to Figure 2	Date Completed	20/4/18
Job No.	E23796	Contractor: EI Australia	Logged SL — Date: 7/5/18
Client	Binah Development Pty Ltd	Drill Rig	Checked CS — Date: 7/5/18
		Inclination: -90°	

Drilling: METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	Sampling: SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
HA	-	GWNE	0.0	0.15				-	CONCRETE	-	-	
			0.5	0.60	BH5_0.3-0.4 PID = 1 ppm			-	FILL: SANDY CLAY; medium to high plasticity, with subangular to angular gravels and brick fragments, no odour.	M		FILL
				0.80	BH5_0.6-0.7 PID = 1.5 ppm			CI-CH	SILTY CLAY; medium to high plasticity, grey mottled red, no odour.			RESIDUAL SOIL
			1.0 – 5.0						Hole Terminated at 0.80 m Target Depth Reached.			

This borehole log should be read in conjunction with EI Australia's accompanying standard notes.

BOREHOLE: BH6

Project	Detailed Site Investigation	Sheet	1 OF 1
Location	26 Elizabeth Street, Liverpool NSW	Date Started	20/4/18
Position	Refer to Figure 2	Date Completed	20/4/18
Job No.	E23796	Contractor: EI Australia	Logged SL — Date: 7/5/18
Client	Binah Development Pty Ltd	Drill Rig	Checked CS — Date: 7/5/18
		Inclination: -90°	

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
HA	-	GWNE	0.0	0.15				-	CONCRETE	-	-	
				0.50	BH6_0.3-0.4 PID = 4 ppm			-	FILL: SANDY CLAY; medium to high plasticity, with subangular to angular gravels, no odour.	M		FILL
			0.5	0.80	BH6_0.6-0.7 PID = 12 ppm			CI-CH	SILTY CLAY; medium to high plasticity, grey mottled red, no odour.			RESIDUAL SOIL
			1.0						Hole Terminated at 0.80 m Target Depth Reached.			
			1.5									
			2.0									
			2.5									
			3.0									
			3.5									
			4.0									
			4.5									
			5.0									

This borehole log should be read in conjunction with EI Australia's accompanying standard notes.

BOREHOLE: BH7

Project	Detailed Site Investigation	Sheet	1 OF 1
Location	26 Elizabeth Street, Liverpool NSW	Date Started	20/4/18
Position	Refer to Figure 2	Date Completed	20/4/18
Job No.	E23796	Contractor	EI Australia
Client	Binah Development Pty Ltd	Drill Rig	
Logged SL	Date: 7/5/18	Inclination	-90°
Checked CS	Date: 7/5/18		

METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
HA	-	GWNE	0.0	0.15				-	CONCRETE	-	-	
				0.30	BH7_0.2-0.3 PID = 0.8 ppm			-	BRICK FRAGMENTS	M		
									Hole Terminated at 0.30 m Refusal on Hard Surface.			

Depth scale: 0.0, 0.5, 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0

This borehole log should be read in conjunction with EI Australia's accompanying standard notes.

BOREHOLE: BH8M

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Contamination | Remediation | Geotechnical

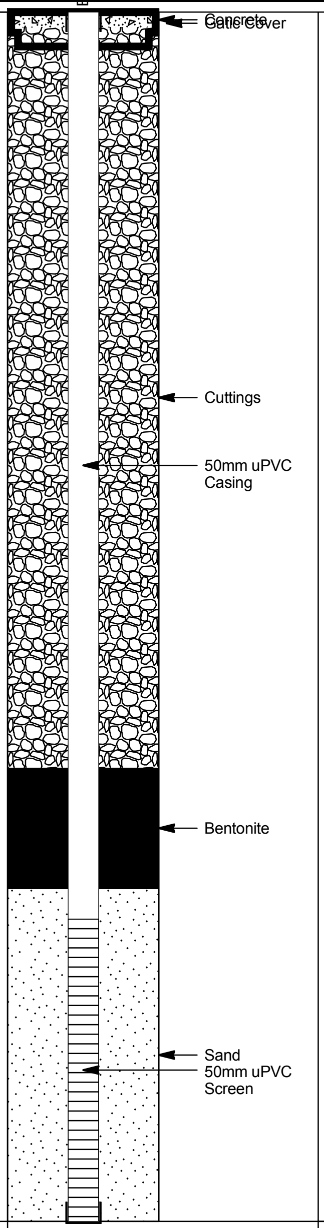
Project	Detailed Site Investigation	Sheet	1 OF 1
Location	26 Elizabeth Street, Liverpool NSW	Date Started	20/4/18
Position	Refer to Figure 2	Date Completed	20/4/18
Job No.	E23796	Contractor	Geosense
Client	Binah Development Pty Ltd	Drill Rig	Drill Rig
		Inclination	-90°
		Logged SL	Date: 7/5/18
		Checked CS	Date: 7/5/18

Drilling					Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY
AD/T	-		0	0.15				-	CONCRETE	-	-
				0.60	BH8M_0.5-0.6 PID = 6 ppm			-	FILL: SANDY CLAY; medium to high plasticity, with subangular to angular gravels, no odour.		
			1–5	5.80	BH8M_1.9-2.0 PID = 3 ppm BH8M_2.4-2.5 PID = 3 ppm			CI-CH	SILTY CLAY; medium to high plasticity, grey mottled red, no odour.	M	
		▽ (approx. 6.1)	6–7	8.00				-	SHALE; extremely weathered, light brown.	-	
			8						Hole Terminated at 8.00 m Refusal on Rock. Borehole Converted into Monitoring Well.		

PIEZOMETER DETAILS

ID Static Water Level

BH8M



This borehole log should be read in conjunction with EI Australia's accompanying standard notes.

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Contamination | Remediation | Geotechnical

BOREHOLE: BH9

Project: Detailed Site Investigation
Location: 26 Elizabeth Street, Liverpool NSW
Position: Refer to Figure 2
Job No.: E23796
Client: Binah Development Pty Ltd

Contractor: Geosense
Drill Rig: Drill Rig
Inclination: -90°

Sheet: 1 OF 1
Date Started: 20/4/18
Date Completed: 20/4/18
Logged: SL Date: 7/5/18
Checked: CS Date: 7/5/18

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
AD/T	-	GWNE	0.0	0.15				-	ASPHALT	-	-	FILL
				0.50	BH9_0.2-0.3 PID = 1.2 ppm			-	FILL: SANDY CLAY; medium to high plasticity, with subangular to angular gravels, no odour.	M		
			0.5 – 1.5	1.50	BH9_0.9-1.0 PID = 0.8 ppm BH9_1.4-1.5 PID = 0.4 ppm			CI-CH	SILTY CLAY; medium to high plasticity, grey mottled red, no odour.	M		RESIDUAL SOIL
			1.5						Hole Terminated at 1.50 m Target Depth Reached.			

Depth scale: 0.0, 0.5, 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0

This borehole log should be read in conjunction with EI Australia's accompanying standard notes.

EXPLANATION OF NOTES, ABBREVIATIONS & TERMS USED ON BOREHOLE AND TEST PIT LOGS

DRILLING/EXCAVATION METHOD

HA	Hand Auger	RD	Rotary blade or drag bit	NQ	Diamond Core - 47 mm
DTC	Diatube Coring	RT	Rotary Tricone bit	NMLC	Diamond Core - 52 mm
NDD	Non-destructive digging	RAB	Rotary Air Blast	HQ	Diamond Core - 63 mm
AS*	Auger Screwing	RC	Reverse Circulation	HMLC	Diamond Core - 63mm
AD*	Auger Drilling	PT	Push Tube	BH	Tractor Mounted Backhoe
*V	V-Bit	CT	Cable Tool Rig	EX	Tracked Hydraulic Excavator
*T	TC-Bit, e.g. ADT	JET	Jetting	EE	Existing Excavation
ADH	Hollow Auger	WB	Washbore or Bailer	HAND	Excavated by Hand Methods

PENETRATION/EXCAVATION RESISTANCE

L **Low resistance.** Rapid penetration/ excavation possible with little effort from equipment used.

M **Medium resistance.** Penetration/ excavation possible at an acceptable rate with moderate effort from equipment used.

H **High resistance.** Penetration/ excavation is possible but at a slow rate and requires significant effort from equipment used.

R **Refusal/ Practical Refusal.** No further progress possible without risk of damage or unacceptable wear to equipment used.

These assessments are subjective and are dependent on many factors, including equipment power and weight, condition of excavation or drilling tools and experience of the operator.

WATER

▽	Water level at date shown	◁	Partial water loss
▷	Water inflow	◀	Complete water loss

GROUNDWATER NOT OBSERVED — Observation of groundwater, whether present or not, was not possible due to drilling water, surface seepage or cave-in of the borehole/ test pit.

GROUNDWATER NOT ENCOUNTERED — Borehole/ test pit was dry soon after excavation. However, groundwater could be present in less permeable strata. Inflow may have been observed had the borehole/ test pit been left open for a longer period.

SAMPLING AND TESTING

SPT

SPT	Standard Penetration Test to AS1289.6.3.1-2004
4,7,11 N=18	4,7,11 = Blows per 150mm. N = Blows per 300mm penetration following 150mm
seating 30/80mm	Where practical refusal occurs, the blows and penetration for that interval are reported
RW	Penetration occurred under the rod weight only
HW	Penetration occurred under the hammer and rod weight only
HB	Hammer double bouncing on anvil

Sampling

DS	Disturbed Sample
BDS	Bulk disturbed Sample
GS	Gas Sample
WS	Water Sample
U63	Thin walled tube sample - number indicates nominal sample diameter in millimetres

Testing

FP	Field Permeability test over section noted
FVS	Field Vane Shear test expressed as uncorrected shear strength (sv = peak value, sr = residual value)
PID	Photoionisation Detector reading in ppm
PM	Pressuremeter test over section noted
PP	Pocket Penetrometer test expressed as instrument reading in kPa
WPT	Water Pressure tests
DCP	Dynamic Cone Penetrometer test
CPT	Static Cone Penetration test
CPTu	Static Cone Penetration test with pore pressure (u) measurement

RANKING OF VISUALLY OBSERVABLE CONTAMINATION AND ODOUR (for specific soil contamination assessment projects)

R = 0	No visible evidence of contamination	R = A	No non-natural odours identified
R = 1	Slight evidence of visible contamination	R = B	Slight non-natural odours identified
R = 2	Visible contamination	R = C	Moderate non-natural odours identified
R = 3	Significant visible contamination	R = D	Strong non-natural odours identified

ROCK CORE RECOVERY

TCR = Total Core Recovery (%)
$$= \frac{\text{Length of core recevered}}{\text{Lengh of core run}} \times 100$$

SCR = Solid Core Recovery (%)
$$= \frac{\Sigma\,\text{Length ofcylindrical core recevered}}{\text{Lengh of core run}} \times 100$$

RQD = Rock Quality Designation (%)
$$= \frac{\Sigma\text{Axial Lenghts of core} > 100\text{mm}}{\text{Lengh of core run}} \times 100$$

MATERIAL BOUNDARIES

———— = inferred boundary   - - - - - - - - = probable boundary   — ?— ?— ?— ?— ? = possible boundary

METHOD OF SOIL DESCRIPTION USED ON BOREHOLE AND TEST PIT LOGS

FILL	ORGANIC SOILS (OL, OH or Pt)	CLAY (CL, CI or CH)
COUBLES or BOULDERS	SILT (ML or MH)	SAND (SP or SW)
GRAVEL (GP or GW)	Combinations of these basic symbols may be used to indicate mixed materials such as sandy clay	

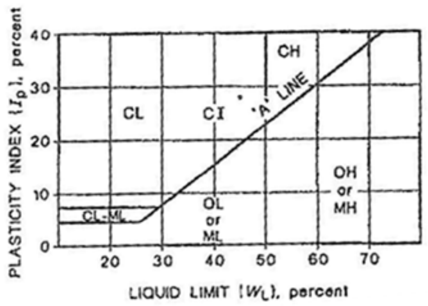
CLASSIFICATION AND INFERRED STRATIGRAPHY

Soil is broadly classified and described in Borehole and Test Pit Logs using the preferred method given in AS1726 – 1993, (Amdt1 – 1994 and Amdt2 – 1994), Appendix A. Material properties are assessed in the field by visual/tactile methods.

PARTICLE SIZE CHARACTERISTICS

Major Division	Sub Division	Particle Size
BOULDERS		>200 mm
COBBLES		63 to 200 mm
GRAVEL	Coarse	20 to 63 mm
	Medium	6 to 20 mm
	Fine	2 to 6 mm
SAND	Coarse	0.6 to 2 mm
	Medium	0.2 to 0.6 mm
	Fine	0.075 to 0.2mm
SILT		0.002 to 0.075 mm
CLAY		<0.002 mm

PLASTICITY PROPERTIES



USCS SYMBOLS

Major Divisions		Symbol	Description
COARSE GRAINED SOILS More than 50% by dry mass less than 63mm is greater than 0.075mm	More than 50% of coarse grains are >2.mm	GW	Well graded gravel and gravel-sand mixtures, little or no fines.
		GP	Poorly graded gravel and gravel-sand mixtures, little or no fines.
		GM	Silty gravel, gravel-sand-silt mixtures.
		GC	Clayey gravel, gravel-sand-clay mixtures.
	More than 50% of coarse grains are <2 mm	SW	Well graded sand and gravelly sand, little or no fines.
		SP	Poorly graded sand and gravelly sand, little or no fines.
		SM	Silty sand, sand-silt mixtures.
		SC	Clayey sand, sandy-clay mixtures.
FINE GRAINED SOILS More than 50% by dry mass less than 63mm is less than 0.075mm	Liquid Limit less < 50%	ML	Inorganic silts of low plasticity, very fine sands, rock flour, silty or clayey fine sands.
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays.
		OL	Organic silts and organic silty clays of low plasticity.
	Liquid Limit > than 50%	MH	Inorganic silts of high plasticity.
		CH	Inorganic clays of high plasticity.
		OH	Organic clays of medium to high plasticity.
		PT	Peat muck and other highly organic soils.

MOISTURE CONDITION

Symbol	Term	Description
D	Dry	Sands and gravels are free flowing. Clays & Silts may be brittle or friable and powdery.
M	Moist	Soils are darker than in the dry condition & may feel cool. Sands and gravels tend to cohere.
W	Wet	Soils exude free water. Sands and gravels tend to cohere.

Moisture content of cohesive soils may also be described in relation to plastic limit (WP) or liquid limit (WL) [» much greater than, > greater than, < less than, « much less than].

CONSISTENCY

Symbol	Term	Undrained Shear Strength
VS	Very Soft	0. to 12 kPa
S	Soft	12 to 25 kPa
F	Firm	25 to 50 kPa
St	Stiff	50 to 100 kPa
VSt	Very Stiff	100 to 200 kPa
H	Hard	Above 200 kPa

DENSITY

Symbol	Term	Density Index %	SPT "N" #
VL	Very Loose	< 15	0 to 4
L	Loose	15 to 35	4 to 10
MD	Medium Density	35 to 65	10 to 30
D	Dense	65 to 85	30 to 50
VD	Very Dense	Above 85	Above 50

In the absence of test results, consistency and density may be assessed from correlations with the observed behaviour of the material.
SPT correlations are not stated in AS1726 – 1993, and may be subject to corrections for overburden pressure and equipment type.

MINOR COMPONENTS

Term	Assessment Guide	Proportion by Mass
Trace	Presence just detectable by feel or eye but soil properties little or no different to general properties of primary component	Coarse grained soils: ≤ 5% Fine grained soil: ≤15%
Some	Presence easily detectable by feel or eye but soil properties little or no different to general properties of primary component	Coarse grained soils: 5 - 12% Fine grained soil: 15 - 30%

TERMS FOR ROCK MATERIAL STRENGTH AND WEATHERING

CLASSIFICATION AND INFERRED STRATIGRAPHY

Soil is broadly classified and described in Borehole and Test Pit Logs using the preferred method given in AS1726 – 1993, (Amdt1 – 1994 and Amdt2 – 1994), Appendix A. Material properties are assessed in the field by visual/ tactile methods.

STRENGTH

Symbol	Term	Point Load Index, $Is_{(50)}$ (MPa) #	Field Guide
EL	Extremely Low	< 0.03	Easily remoulded by hand to a material with soil properties.
VL	Very Low	0.03 to 0.1	Material crumbles under firm blows with sharp end of pick; can be peeled with knife; too hard to cut a triaxial sample by hand. Pieces up to 30 mm can be broken by finger pressure.
L	Low	0.1 to 0.3	Easily scored with a knife; indentations 1 mm to 3 mm show in the specimen with firm blows of pick point; has dull sound under hammer. A piece of core 150 mm long by 50 mm diameter may be broken by hand. Sharp edges of core may be friable and break during handling.
M	Medium	0.3 to 1	Readily scored with a knife; a piece of core 150 mm long by 50 mm diameter can be broken by hand with difficulty.
H	High	1 to 3	A piece of core 150 mm long by 50 mm diameter cannot be broken by hand but can be broken with pick with a single firm blow; rock rings under hammer.
VH	Very High	3 to 10	Hand specimen breaks with pick after more than one blow; rock rings under hammer.
EH	Extremely High	>10	Specimen requires many blows with geological pick to break through intact material; rock rings under hammer.

 # Rock Strength Test Results

▼ Point Load Strength Index, $Is_{(50)}$, Axial test (MPa)

◀ Point Load Strength Index, $Is_{(50)}$, Diametral test (MPa)

Relationship between rock strength test result ($Is_{(50)}$) and unconfined compressive strength (UCS) will vary with rock type and strength, and should be determined on a site-specific basis. UCS is typically 10 to 30 x $Is_{(50)}$, but can be as low as 5 MPa.

ROCK MATERIAL WEATHERING

Symbol		Term	Field Guide
RS		Residual Soil	Soil developed on extremely weathered rock; the mass structure and substance fabric are no longer evident; there is a large change in volume but the soil has not been significantly transported.
EW		Extremely Weathered	Rock is weathered to such an extent that it has soil properties - i.e. it either disintegrates or can be remoulded, in water.
DW	HW	Distinctly Weathered	Rock strength usually changed by weathering. The rock may be highly discoloured, usually by iron staining. Porosity may be increased by leaching, or may be decreased due to deposition of weathering products in pores. In some environments it is convenient to subdivide into Highly Weathered and Moderately Weathered, with the degree of alteration typically less for MW.
	MW		
SW		Slightly Weathered	Rock slightly discoloured but shows little or no change of strength relative to fresh rock.
FR		Fresh	Rock shows no sign of decomposition or staining.

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ABBREVIATIONS AND DESCRIPTIONS FOR ROCK MATERIAL AND DEFECTS

CLASSIFICATION AND INFERRED STRATIGRAPHY

Rock is broadly classified and described in Borehole Logs using the preferred method given in AS1726 – 1993, (Amdt1 – 1994 and Amdt2 – 1994), Appendix A. Material properties are assessed in the field by visual/ tactile methods.

ROCK MATERIAL DESCRIPTION

Layering

Term	Description
Massive	No layering apparent
Poorly Developed	Layering just visible; little effect on properties
Well Developed	Layering (bedding, foliation, cleavage) distinct; rock breaks more easily parallel to layering

Structure

Term	Spacing (mm)
Thinly laminated	<6
Laminated	6 – 20
Very thinly bedded	20 – 60
Thinly bedded	60 – 200
Medium bedded	200 – 600
Thickly bedded	600 – 2,000
Very thickly bedded	> 2,000

ABBREVIATIONS AND DESCRIPTIONS FOR DEFECT TYPES

Defect Type	Abbr.	Description
Joint	JT	Surface of a fracture or parting, formed without displacement, across which the rock has little or no tensile strength. May be closed or filled by air, water or soil or rock substance, which acts as cement.
Bedding Parting	BP	Surface of fracture or parting, across which the rock has little or no tensile strength, parallel or sub-parallel to layering/ bedding. Bedding refers to the layering or stratification of a rock, indicating orientation during deposition, resulting in planar anisotropy in the rock material.
Foliation	FL	Repetitive planar structure parallel to the shear direction or perpendicular to the direction of higher pressure, especially in metamorphic rock, e.g. Schistosity (SH) and Gneissosity.
Contact	CO	The surface between two types or ages of rock.
Cleavage	CL	Cleavage planes appear as parallel, closely spaced and planar surfaces resulting from mechanical fracturing of rock through deformation or metamorphism, independent of bedding.
Sheared Seam/ Zone (Fault)	SS/SZ	Seam or zone with roughly parallel almost planar boundaries of rock substance cut by closely spaced (often <50 mm) parallel and usually smooth or slickensided joints or cleavage planes.
Crushed Seam/ Zone (Fault)	CS/CZ	Seam or zone composed of disoriented usually angular fragments of the host rock substance, with roughly parallel near-planar boundaries. The brecciated fragments may be of clay, silt, sand or gravel sizes or mixtures of these.
Decomposed Seam/ Zone	DS/DZ	Seam of soil substance, often with gradational boundaries, formed by weathering of the rock material in places.
Infilled Seam	IS	Seam of soil substance, usually clay or clayey, with very distinct roughly parallel boundaries, formed by soil migrating into joint or open cavity.
Schistocity	SH	The foliation in schist or other coarse grained crystalline rock due to the parallel arrangement of platy or prismatic mineral grains, such as mica.
Vein	VN	Distinct sheet-like body of minerals crystallised within rock through typically open-space filling or crack-seal growth.

ABBREVIATIONS AND DESCRIPTIONS FOR DEFECT SHAPE AND ROUGHNESS

Shape	Abbr.	Description	Roughness	Abbr.	Description
Planar	Pl	Consistent orientation	Polished	Pol	Shiny smooth surface
Curved	Cu	Gradual change in orientation	Slickensided	SL	Grooved or striated surface, usually polished
Undulating	Un	Wavy surface	Smooth	S	Smooth to touch. Few or no surface irregularities
Stepped	St	One or more well defined steps	Rough	RF	Many small surface irregularities (amplitude generally <1mm). Feels like fine to coarse sandpaper
Irregular	Ir	Many sharp changes in orientation	Very Rough	VR	Many large surface irregularities, amplitude generally >1mm. Feels like very coarse sandpaper

Orientation: **Vertical Boreholes –** The dip (inclination from horizontal) of the defect.
Inclined Boreholes – The inclination is measured as the acute angle to the core axis.

ABBREVIATIONS AND DESCRIPTIONS FOR DEFECT COATING

Coating	Abbr.	Description
Clean	CN	No visible coating or infilling
Stain	SN	No visible coating but surfaces are discoloured by staining, often limonite (orange-brown)
Veneer	VNR	A visible coating of soil or mineral substance, usually too thin to measure (< 1 mm); may be patchy

DEFECT APERTURE

Aperture	Abbr.	Description
Closed	CL	Closed.
Open	O	Without any infill material.
Infilled	-	Soil or rock i.e. clay, talc, pyrite, quartz, etc.

APPENDIX G
Field Data Sheets

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Daily Inspection / Work Summary Card - Remediation & Validation Form

OP 005a (Rev 2)

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EI Australia
Suite 6.01, 55 Miller Street
PYRMONT, NSW, 2009
ABN 42 909 129 957
E service@eiaustralia.com.au
W www.eiaustralia.com.au
T 02 9516 0722

Project Number:	E23796	Engineer Name:	N.G	Page:	____ of ____
Date:	2-5-18	Time ON Site:	14:00		
Travel Time:	1.5 hr	Time OFF Site:	15:20		
Site Address/Location:	26				
Climatic Conditions:	~~Clear~~ fine				

Completed Works:

3 GW wells sampled

Comments / Issues / Conclusions / Further Testing Required / Actions to be Undertaken / Timing of Actions:

GWQD1 + GWQT1 taken from BH2M

Signed by:

WATER SAMPLING FIELD SHEET

Environmental Investigations Australia
Contamination | Remediation | Geotechnical

Site Address: 26 Elizabeth St, Liverpool	Job Number: E23796
Client:	Date: 2-5-18
Field Staff: N.G	Sampling Location ID BH1M
Well Location:	Round No:

MEDIUM ☒Groundwater ☐Surface Water ☐Stormwater ☐Other:

SAMPLING POINT INFO	
Well Installation Date:	Stickup (m): +0.09 (+ above ground - below ground)
Initial Well Depth (mbgl):	Screen Interval (mBTOC):
Previous Sampling Date:	Previous SWL (mBTOC):
PID READINGS	
PID Headspace (ppm):	PID Background (ppm):
PID Breathing Space (ppm):	
PRE PURGE	
Total Well Depth (mbgl): 5.73	Well Head Condition: good
SWL (mbtoc): 3.25	Water Column (m):
PHASE SEPARATED HYDROCARBONS (PSH)	
Depth to PSH (mbtoc):	PSH Visually Confirmed (Bailer):
PSH Thickness (mm):	
PURGE AND SAMPLE	

Sampling Method ☒Bladder ☐Peristaltic ☐Submersible ☐Other:

Depth of Pump Inlet: 4.5 mbgl	Fill Timer: 10
Pump Pressure Regulator (psi): 20	Discharge Timer: 5
Weather Conditions: fine	Cycle: CPM 4
Pump on time:	Pump off time:
WATER QUALITY PARAMETERS	
Probe Make and Model:	Bump Test Date and Time:

Time	Volume (L)	SWL (mbtoc)	Temp (°C)	EC (µS/cm)	Redox (mV)	DO (mg/L)	pH (units)	Comments (colour, turbidity, odour etc.)
	0.5	3.25	24.78	13270	126.7	0.71	7.28	brown/yellow, M-H turb, no odour
	1	3.25	24.80	13231	130.5	0.70	7.21	↓
	1.5	3.25	24.85	13248	133.4	0.69	7.12	
	2	3.25	24.88	13250	137.6	0.69	7.08	
Stabilisation range: 3 consecutive readings			±0.2°C	±3%	±20mV	±10%	±0.2	

OTHER COMMENTS/OBSERVATIONS:

SIGNATURE:

WATER SAMPLING FIELD SHEET

Environmental Investigations Australia
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Site Address: 26 Elizabeth St, Liverpool	Job Number: E23796
Client:	Date: 2-5-18
Field Staff: N.G	Sampling Location ID BH2M
Well Location:	Round No:

MEDIUM ☒Groundwater ☐Surface Water ☐Stormwater ☐Other:

SAMPLING POINT INFO

Well Installation Date:	Stickup (m): -0.10 (+ above ground - below ground)
Initial Well Depth (mbgl):	Screen Interval (mBTOC):
Previous Sampling Date:	Previous SWL (mBTOC):

PID READINGS

PID Headspace (ppm):	PID Background (ppm):
PID Breathing Space (ppm):	

PRE PURGE

Total Well Depth (mbgl): 9.87	Well Head Condition: good
SWL (mbtoc): 2.99	Water Column (m):

PHASE SEPARATED HYDROCARBONS (PSH)

Depth to PSH (mbtoc):	PSH Visually Confirmed (Bailer):
PSH Thickness (mm):	

PURGE AND SAMPLE

Sampling Method ☐Bladder ☐Peristaltic ☐Submersible ☐Other:

Depth of Pump Inlet: 8.0 mbgl	Fill Timer: 10
Pump Pressure Regulator (psi): 80	Discharge Timer: 5
Weather Conditions: fine	Cycle: CPM 4
Pump on time:	Pump off time:

WATER QUALITY PARAMETERS

Probe Make and Model:	Bump Test Date and Time:

Time	Volume (L)	SWL (mbtoc)	Temp (°C)	EC (µS/cm)	Redox (mV)	DO (mg/L)	pH (units)	Comments (colour, turbidity, odour etc.)
	0.5	2.99	24.27	11220	154.8	0.28	7.50	pale yellow, L-turb, no odour
	1	2.99	24.25	11265	141.9	0.26	7.65	
	1.5	2.99	24.23	11318	126.3	0.24	7.79	
	2	2.99	24.20	11340	105.2	0.21	7.88	
Stabilisation range: 3 consecutive readings			±0.2°C	±3%	±20mV	±10%	±0.2	

OTHER COMMENTS/OBSERVATIONS:

GWQD1 + GWQT1 taken

SIGNATURE:

WATER SAMPLING FIELD SHEET	Environmental Investigations Australia Contamination | Remediation | Geotechnical
Site Address: 26 Elizabeth st, Liverpool	Job Number: E23796
Client:	Date: 2-5-18
Field Staff: N.G	Sampling Location ID BH84
Well Location:	Round No:
MEDIUM ☐Groundwater ☐Surface Water	☐Stormwater ☐Other:
SAMPLING POINT INFO	
Well Installation Date:	Stickup (m): -0.10 (+ above ground - below ground)
Initial Well Depth (mbgl):	Screen Interval (mBTOC):
Previous Sampling Date:	Previous SWL (mBTOC):
PID READINGS	
PID Headspace (ppm):	PID Background (ppm):
PID Breathing Space (ppm):	
PRE PURGE	
Total Well Depth (mbgl): 7.93	Well Head Condition: good
SWL (mbtoc): 3.23	Water Column (m):
PHASE SEPARATED HYDROCARBONS (PSH)	
Depth to PSH (mbtoc):	PSH Visually Confirmed (Bailer):
PSH Thickness (mm):	
PURGE AND SAMPLE	
Sampling Method ☐Bladder ☐Peristaltic	☐Submersible ☐Other:
Depth of Pump Inlet: 6.00 mbgl	Fill Timer: 10
Pump Pressure Regulator (psi): 20	Discharge Timer: 5
Weather Conditions: fine	Cycle: CRM 4
Pump on time:	Pump off time:
WATER QUALITY PARAMETERS	
Probe Make and Model:	Bump Test Date and Time:

Time	Volume (L)	SWL (mbtoc)	Temp (°C)	EC (µS/cm)	Redox (mV)	DO (mg/L)	pH (units)	Comments (colour, turbidity, odour etc.)
	0.5	3.23	25.33	13090	72.8	0.44	7.94	brown/grey, L-M turb, no odour
	1	3.23	25.37	13109	75.7	0.44	7.91	
	1.5	3.23	25.42	13137	86.9	0.43	7.87	
	2.0	3.23	25.52	13140	90.9	0.43	7.82	
Stabilisation range: 3 consecutive readings			±0.2°C	±3%	±20mV	±10%	±0.2	

OTHER COMMENTS/OBSERVATIONS:

SIGNATURE:

Site Inspection Card - CLM Projects
Form OP 005 (Rev 2)

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EI Australia
Suite 6.01, 55 Miller Street
PYRMONT, NSW, 2009
ABN 42 909 129 957
E service@eiaustralia.com.au
W www.eiaustralia.com.au
T 02 9516 0722

Project Number:	E23796	Engineer Name:	Shazza	
Date:	20-4-18	Time ON Site:	0700	
Travel Time:		Time OFF Site:	6PM.	

Site Address/Location: 26 Elizabeth St, Liverpool.

Climatic Conditions:

Current Site Uses:

Service Centre.

Surrounding Land Uses:

North: All Saints' Catholic Church.

South: NSW Police & Liverpool Court House.

East: Bigge St & Bigge Park.

West: George St & Car Parking.

Current Site Condition

Buildings Structures:

☒ slab on ground ☐ suspended slab ☐ basement ..... Level(s) ☐ sub-stations ☒ service pits / sumps (sewer)

☒ potential ACM (roof) ☒ potential lead paint ☒ accessible soils (locations) front

☐ Other (please decsribe):

Soil / Vegetation (overgrown, distressed, bare soil patches):

small part exposed bare soils with vegetation.

Condition of concrete, bitumen roading, flooring etc.:

concrete crack at front.

Evidence of USTs / UPSS Infrastructure:

potential UST/SUMP at the rear of warehouse/workshop.

Evidence of Groundwater Monitoring Wells:

No

Presence of Waste / Rubbish / Stockpiles:

Yes Stockpiles of Asbestos inside building

Unusual Odours: No

Signed: Name: Date:

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EI Australia
Suite 6.01, 55 Miller Street
PYRMONT, NSW, 2009
ABN 42 909 129 957
E service@eiaustralia.com.au
W www.eiaustralia.com.au
T 02 9516 0722

Site Topography (slope of site, surface water, drainage, closest receptor etc.)

very slight slope towards east.

Hazardous materials / activities: (presence of asbestos, solid or liquid hazardous materials, infrastructure)

A service centre, potential. UST / Oil separators
Stockpiles of unwanted soil
gas tanks in warehouse.

Anecdotal Information:

Notes:

Signed:	Name:	Date:

Site Inspection & Operational History Interview - Form OP-005

(Rev 002)

EI Australia
Suite 6.01, 55 Miller Street
PYRMONT, NSW, 2009
ABN 42 909 129 957
E service@eiaustralia.com.au
W www.eiaustralia.com.au
T 02 9516 0722

Site Plan (Schematic or Scale):

Signed:	Name:	Date:

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Borehole Log

Suite 6.01, 55 Miller Street,
Pyrmont, NSW 2009
Ph: (02) 9516 0722
Fax: (02) 9516 0744
service@eiaustralia.com.au

BH No: BH1 ~~..~~ M-1
Sheet:
Job No: E22796

Client:
Principal:
Project:
Location:
Equipment:
Diameter:

Slope: -90°
Bearing: - -

Started:
Finished:
Logged:
Checked:
RL Surface:
Datum:

drilling information					material information					
method	water	samples	sample method / QC	depth (m)	PID reading	material code	material description soil type, particle characteristics or fines plasticity, colour, secondary and minor components	moisture + density/consistency	Odour (Y/N)	well construction
0.2-0.3					3.8	F,	Concrete Fill - Sandy CLAY; M-H plas, with A-SA gravels	M	N	0.1 ground
0.6-0.7				0.5	3.0	N,	silty CLAY; M-H plas, grey mottled red,	M	N	B+ Cement Grout
1.1-1.2				1.0	4.2					
1.6-1.7				1.5	3.2					
2.1-2.2				2.0	4.5					3.5
2.5-2.6				2.5						4.0 4.3
3.0-3.1				3.0	3.0					
3.5-3.6				3.5	3.4					5.7
3.9-4.0				4.0	4.0					

method
AS auger screw*
AD auger drill*
RR roller/tricone
W washbore
CB claw or blade bit
HA hand auger
D diatube
V V-bit
T TC-bit
NMLC NMLC core
NQ, HQ, PQ wireline core
*bit shown by suffix e.g. ADV

odour index
HC hydrocarbon
S solvent
Su sulfur

odour strength index
w weak
m moderate
s strong
vs very strong

weathering
XW extremely weathered
HW highly weathered
MW moderately weathered
SW slightly weathered
FR fresh

water
level at date / time
inflow
complete outflow
partial outflow

Classification symbols and soil description based on unified classification system. Refer accompanying description sheets for further information.

moisture
D dry
M moist
W wet
Wp plastic limit
Wl liquid limit

grain size
vf very fine
f fine
m medium
c coarse

consistency
VS very soft
S soft
F firm
St stiff
VSt very stiff
H hard
Fb friable

density index
VL very loose
L loose
MD medium dense
D dense
VD very dense

material boundaries
known boundary
probable boundary
? possible boundary

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Borehole Log

Suite 6.01, 55 Miller Street,
Pyrmont, NSW 2009
Ph: (02) 9516 0722
Fax: (02) 9516 0744
service@eiaustralia.com.au

BH No: BH1M-2
Sheet:
Job No: E23796

Client:
Principal:
Project:
Location:
Started:
Finished:
Logged: SL
Checked:

Equipment:
Diameter:
Slope: -90°
Bearing: - -
RL Surface:
Datum:

method	water	samples	sample method / QC	depth (m)	PID reading	material code	material description — soil type, particle characteristics or fines plasticity, colour, secondary and minor components	moisture + density/consistency	Odour (Y/N)	well construction
				4.0						
4.4-4.5				4.5	1.6					
4.9-5.0				5.0	14	R1	SHALE, XW, Light brown	D	N	
5.4-5.5				5.5	1.5		~~HARD ROCK~~ SHALE			
							Refusal			
							Change to well @ 5.7m.			

method
AS auger screw*
AD auger drill*
RR roller/tricone
W washbore
CB claw or blade bit
HA hand auger
D diatube
V V-bit
T TC-bit
NMLC NMLC core
NQ, HQ, PQ wireline core
*bit shown by suffix e.g. ADV

odour index
HC hydrocarbon
S solvent
Su sulfur

odour strength index
w weak
m moderate
s strong
vs very strong

weathering
XW extremely weatherd
HW highly weathered
MW moderately weathered
SW slightly weathered
FR fresh

water
level at date / time
inflow
complete outflow
partial outflow

Classification symbols and soil description based on unified classification system. Refer accompanying description sheets for further information.

moisture
D dry
M moist
W wet
Wp plastic limit
Wl liquid limit

grain size
vf very fine
f fine
m medium
c coarse

consistency
VS very soft
S soft
F firm
St stiff
VSt very stiff
H hard
Fb friable

density index
VL very loose
L loose
MD medium dense
D dense
VD very dense

material boundaries
known boundary
probable boundary
? possible boundary

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Contamination | Remediation | Geotechnical

Borehole Log

Suite 6.01, 55 Miller Street,
Pyrmont, NSW 2009
Ph: (02) 9516 0722
Fax: (02) 9516 0744
service@eiaustralia.com.au

BH No: BH2M
Sheet:
Job No:

Client:
Principal:
Project: E23796
Location:
Equipment:
Diameter:
Slope: -90°
Bearing: - -
Started:
Finished: SL
Logged:
Checked: 20-4-18
RL Surface:
Datum:

sample interval	method	water	samples	sample method / QC	depth (m)	PID reading	material code	material description (soil type, particle characteristics or fines plasticity, colour, secondary and minor components)	moisture + density/consistency	Odour (Y/N)	well construction
0.2-0.3					0.1	0.7		CONCRETE			
0.5-0.6					0.5	2.1		F1	D	N	0.4
0.9-1.0					1.0	2.5		N1	M	N	
1.4-1.5						3.4					BtC
1.9-2.0					2.0	1.9					
2.4-2.5						3.2					
2.9-3.0					3.0	1.8					
3.5-3.6						2.6					6.8
4.0-4.1					4.0	3.0					Bento
4.5-4.6						1.3	N2	SILTY CLAY; L-MP, yellow,	M	N	
					5.0						7.4
					6.0						
					7.0						2m
					8.0						9.8
							R1	SHALE	Water @ 8.3		
9.7-9.8						1.0					

EOH @ 9.8m

method
AS auger screw*
AD auger drill*
RR roller/tricone
W washbore
CB claw or blade bit
HA hand auger
D diatube
V V-bit
T TC-bit
NMLC NMLC core
NQ, HQ, PQ wireline core
*bit shown by suffix e.g. ADV

odour index
HC hydrocarbon
S solvent
Su sulfur

odour strength index
w weak
m moderate
s strong
vs very strong

weathering
XW extremely weatherd
HW highly weathered
MW moderately weathered
SW slightly weathered
FR fresh

water
level at date / time
inflow
complete outflow
partial outflow

Classification symbols and soil description based on unified classification system. Refer accompanying description sheets for further information.

moisture
D dry
M moist
W wet
Wp plastic limit
Wl liquid limit

grain size
vf very fine
f fine
m medium
c coarse

consistency
VS very soft
S soft
F firm
St stiff
VSt very stiff
H hard
Fb friable

density index
VL very loose
L loose
MD medium dense
D dense
VD very dense

material boundaries
known boundary
probable boundary
—?— possible boundary

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Borehole Log

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BH No: BH03
Sheet:
Job No:

Client: E23796
Principal:
Project:
Location:

Started:
Finished: 20-4-18
Logged: SL
Checked:

Equipment:
Diameter:
Slope: -90°
Bearing: - -
RL Surface:
Datum:

drilling information | **material information**

method	water	samples	sample method / QC	depth (m)	PID reading	material code	material description (soil type, particle characteristics or fines plasticity, colour, secondary and minor components)	moisture + density/consistency	Odour (Y/N)	well construction
				0.15			CONCRETE			
0.2-0.3		▨				1.8	F1			
				0.5			N1			
0.9-1.0		▨		1.0	1.7					
1.4-1.5		▨		1.5	3.2					
1.9-2.0		▨		2.0	1.8					
							EOH @ 2.0.			
							TDR.			

method
AS auger screw*
AD auger drill*
RR roller/tricone
W washbore
CB claw or blade bit
HA hand auger
D diatube
V V-bit
T TC-bit
NMLC NMLC core
NQ, HQ, PQ wireline core
*bit shown by suffix e.g. ADV

odour index
HC hydrocarbon
S solvent
Su sulfur

odour strength index
w weak
m moderate
s strong
vs very strong

weathering
XW extremely weatherd
HW highly weathered
MW moderately weathered
SW slightly weathered
FR fresh

water
level at date / time
inflow
complete outflow
partial outflow

Classification symbols and soil description based on unified classification system. Refer accompanying description sheets for further information.

moisture
D dry
M moist
W wet
Wp plastic limit
Wl liquid limit

grain size
vf very fine
f fine
m medium
c coarse

consistency
VS very soft
S soft
F firm
St stiff
VSt very stiff
H hard
Fb friable

density index
VL very loose
L loose
MD medium dense
D dense
VD very dense

material boundaries
known boundary
probable boundary
? possible boundary

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Fax: (02) 9516 0744
service@eiaustralia.com.au

Borehole Log

BH No:	BH4
Sheet:	
Job No:	

Client:	E23796	Started:	
Principal:		Finished:	SL
Project:		Logged:	20-4-18
Location:		Checked:	
Equipment:	HA	Slope: -90°	RL Surface:
Diameter:		Bearing: - -	Datum:

	method	water	samples	sample method / QC	depth (m)	PID reading	material code	material description: soil type, particle characteristics or fines plasticity, colour, secondary and minor components	moisture + density/consistency	Odour (Y/N)	well construction
					0.15	0.7		CONCRETE			
0.2-0.3			▨					SAND, f-mg, yellow.	M	N	
0.5-0.6			▨		0.5	1.4	@	FI			
								EOH @ 0.7m. Refusal.			

method		odour index		weathering	
AS	auger screw*	HC	hydrocarbon	XW	extremely weatherd
AD	auger drill*	S	solvent	HW	highly weathered
RR	roller/tricone	Su	sulfur	MW	moderately weathered
W	washbore			SW	slightly weathered
CB	claw or blade bit			FR	fresh
HA	hand auger				
D	diatube				
V	V-bit				
T	TC-bit				
NMLC	NMLC core				
NQ, HQ, PQ	wireline core				

*bit shown by suffix e.g. ADV

odour strength index

w	weak
m	moderate
s	strong
vs	very strong

water

- level at date / time
- inflow
- complete outflow
- partial outflow

Classification symbols and soil description based on unified classification system. Refer accompanying description sheets for further information.

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
Wl	liquid limit

grain size

vf	very fine
f	fine
m	medium
c	coarse

consistency

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable

density index

VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

material boundaries

- known boundary
- probable boundary
- ? possible boundary

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Borehole Log

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Pyrmont, NSW 2009
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BH No: BH5
Sheet:
Job No:

Client:
Principal: E23796
Project:
Location:
Equipment: HA
Diameter:
Slope: -90°
Bearing: - -
Started: 20-4-18
Finished:
Logged: SL
Checked:
RL Surface:
Datum:

drilling information					material information					
method	water	samples	sample method / QC	depth (m)	PID reading	material code	material description: soil type, particle characteristics or fines plasticity, colour, secondary and minor components	moisture + density/consistency	Odour (Y/N)	well construction
				0.15			CONCRETE.			
0.3-0.4					1.0		F1 with red brick fragments			
0.6-0.7					1.5		N1			
							EOH @ 0.8m.			
							TDR.			

method
AS auger screw*
AD auger drill*
RR roller/tricone
W washbore
CB claw or blade bit
HA hand auger
D diatube
V V-bit
T TC-bit
NMLC NMLC core
NQ, HQ, PQ wireline core
*bit shown by suffix e.g. ADV

odour index
HC hydrocarbon
S solvent
Su sulfur

odour strength index
w weak
m moderate
s strong
vs very strong

weathering
XW extremely weatherd
HW highly weathered
MW moderately weathered
SW slightly weathered
FR fresh

water
level at date / time
inflow
complete outflow
partial outflow

Classification symbols and soil description based on unified classification system. Refer accompanying description sheets for further information.

moisture
D dry
M moist
W wet
Wp plastic limit
Wl liquid limit

grain size
vf very fine
f fine
m medium
c coarse

consistency
VS very soft
S soft
F firm
St stiff
VSt very stiff
H hard
Fb friable

density index
VL very loose
L loose
MD medium dense
D dense
VD very dense

material boundaries
known boundary
probable boundary
? possible boundary

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Borehole Log

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Fax: (02) 9516 0744
service@eiaustralia.com.au

BH No: BH6
Sheet:
Job No:

Client:
Principal:
Project: E23796
Location:

Started: 20-4-18
Finished:
Logged: SL
Checked:

Equipment: HA
Diameter:
Slope: -90°
Bearing: - -
RL Surface:
Datum:

drilling information					material information					
method	water	samples	sample method / QC	depth (m)	PID reading	material code	material description soil type, particle characteristics or fines plasticity, colour, secondary and minor components	moisture + density/consistency	Odour (Y/N)	well construction
				0.15			CONCRETE			
0.3-0.4					4		F1			
0.6-0.7					12		N1			
							EOH @ 0.8			
							TDR			

method
AS auger screw*
AD auger drill*
RR roller/tricone
W washbore
CB claw or blade bit
HA hand auger
D diatube
V V-bit
T TC-bit
NMLC NMLC core
NQ, HQ, PQ wireline core
*bit shown by suffix e.g. ADV

odour index
HC hydrocarbon
S solvent
Su sulfur

odour strength index
w weak
m moderate
s strong
vs very strong

weathering
XW extremely weathered
HW highly weathered
MW moderately weathered
SW slightly weathered
FR fresh

water
level at date / time
inflow
complete outflow
partial outflow

Classification symbols and soil description based on unified classification system. Refer accompanying description sheets for further information.

moisture
D dry
M moist
W wet
Wp plastic limit
Wl liquid limit

grain size
vf very fine
f fine
m medium
c coarse

consistency
VS very soft
S soft
F firm
St stiff
VSt very stiff
H hard
Fb friable

density index
VL very loose
L loose
MD medium dense
D dense
VD very dense

material boundaries
known boundary
probable boundary
—?— possible boundary

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Borehole Log

BH No: BH 7
Sheet:
Job No:

Client:	Started:
Principal:	Finished: SL
Project:	Logged:
Location:	Checked: 20-4-18
Equipment: Slope: -90°	RL Surface:
Diameter: Bearing: - -	Datum:

drilling information					material information					
method	water	samples	sample method / QC	depth (m)	PID reading	material code	material description soil type, particle characteristics or fines plasticity, colour, secondary and minor components	moisture + density/consistency	Odour (Y/N)	well construction
		0.2-0.3 m		0.15			CONCRETE			
				0.3			Brick fragments			
							EoH @ 0.3 m			
							Refusal on Brick			

method
AS auger screw*
AD auger drill*
RR roller/tricone
W washbore
CB claw or blade bit
HA hand auger
D diatube
V V-bit
T TC-bit
NMLC NMLC core
NQ, HQ, PQ wireline core
*bit shown by suffix e.g. ADV

odour index
HC hydrocarbon
S solvent
Su sulfur

odour strength index
w weak
m moderate
s strong
vs very strong

weathering
XW extremely weatherd
HW highly weathered
MW moderately weathered
SW slightly weathered
FR fresh

water
level at date / time
inflow
complete outflow
partial outflow

Classification symbols and soil description based on unified classification system. Refer accompanying description sheets for further information.

moisture
D dry
M moist
W wet
Wp plastic limit
Wl liquid limit

grain size
vf very fine
f fine
m medium
c coarse

consistency
VS very soft
S soft
F firm
St stiff
VSt very stiff
H hard
Fb friable

density index
VL very loose
L loose
MD medium dense
D dense
VD very dense

material boundaries
known boundary
probable boundary
? possible boundary

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Borehole Log

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BH No: BH8M
Sheet:
Job No:

Client:
Principal:
Project: E23796
Location:

Started:
Finished:
Logged: SV
Checked: 20-4-18

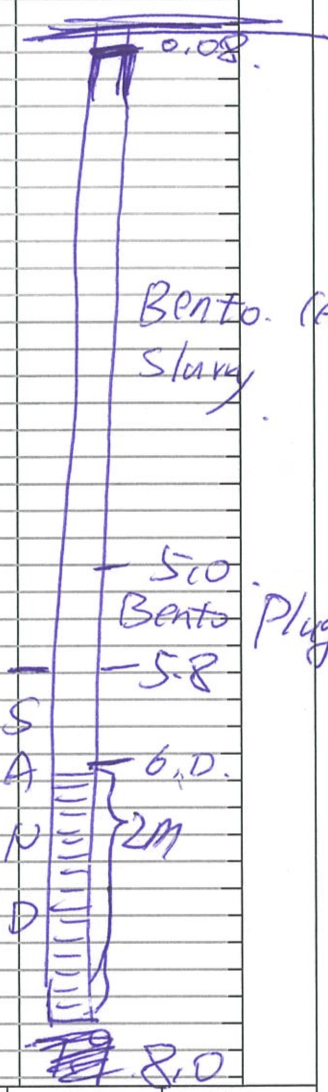
Equipment:
Diameter:
Slope: -90°
Bearing: - -
RL Surface:
Datum:

drilling information | **material information**

method	water	samples	sample method / QC	depth (m)	PID reading	material code	material description (soil type, particle characteristics or fines plasticity, colour, secondary and minor components)	moisture + density/consistency	Odour (Y/N)
							CONCRETE.		
				0.15			F1		
0.5-0.6		▮		0.5	6				
							N1		
				1.0					
				1.5					
1.9-2.0		▮		2.0	3				
2.4-2.5		▮		2.5	3				
				5.8			R1 XW SHALE		
water @ 6.1									
							EOH @ 8m		

change to used

well construction



method		odour index		weathering		consistency		density index	
AS	auger screw*	HC	hydrocarbon	XW	extremely weatherd	VS	very soft	VL	very loose
AD	auger drill*	S	solvent	HW	highly weathered	S	soft	L	loose
RR	roller/tricone	Su	sulfur	MW	moderately weathered	F	firm	MD	medium dense
W	washbore			SW	slightly weathered	St	stiff	D	dense
CB	claw or blade bit			FR	fresh	VSt	very stiff	VD	very dense
HA	hand auger					H	hard		
D	diatube					Fb	friable		
V	V-bit								
T	TC-bit								
NMLC	NMLC core								
NQ, HQ, PQ	wireline core								

*bit shown by suffix e.g. ADV

odour strength index
w — weak
m — moderate
s — strong
vs — very strong

water
level at date / time
inflow
complete outflow
partial outflow

Classification symbols and soil description based on unified classification system. Refer accompanying description sheets for further information.

moisture
D — dry
M — moist
W — wet
Wp — plastic limit
Wl — liquid limit

grain size
vf — very fine
f — fine
m — medium
c — coarse

material boundaries
known boundary
probable boundary
possible boundary

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Borehole Log

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BH No: BH9.
Sheet:
Job No:

Client:
Principal:
Project: E23796
Location:

Started: 20-4-18
Finished:
Logged: SL
Checked:

Equipment:
Diameter:
Slope: -90°
Bearing: - -
RL Surface:
Datum:

drilling information					material information					
method	water	samples	sample method / QC	depth (m)	PID reading	material code	material description soil type, particle characteristics or fines plasticity, colour, secondary and minor components	moisture + density/consistency	Odour (Y/N)	well construction
				0.15			ASPHALT			
		0.2-0.3				1.2	F1			
				0.5						
							N1			
		0.9-1.0		1.0	0.8					
		1.4-1.5		1.5	0.4					
							EOH @ 1.5m			
							TDR			

method
AS auger screw*
AD auger drill*
RR roller/tricone
W washbore
CB claw or blade bit
HA hand auger
D diatube
V V-bit
T TC-bit
NMLC NMLC core
NQ, HQ, PQ wireline core
*bit shown by suffix e.g. ADV

odour index
HC hydrocarbon
S solvent
Su sulfur

odour strength index
w weak
m moderate
s strong
vs very strong

weathering
XW extremely weatherd
HW highly weathered
MW moderately weathered
SW slightly weathered
FR fresh

water
level at date / time
inflow
complete outflow
partial outflow

Classification symbols and soil description based on unified classification system. Refer accompanying description sheets for further information.

moisture
D dry
M moist
W wet
Wp plastic limit
Wl liquid limit

grain size
vf very fine
f fine
m medium
c coarse

consistency
VS very soft
S soft
F firm
St stiff
VSt very stiff
H hard
Fb friable

density index
VL very loose
L loose
MD medium dense
D dense
VD very dense

material boundaries
known boundary
probable boundary
? possible boundary

APPENDIX H

Chain of Custody and Sample Receipt Forms

CE133191

SGS

CHAIN OF CUSTODY & ANALYSIS REQUEST
(FOR INTERLAB WORK)

Receiving Laboratory: **SGS Cairns**

Initiating Laboratory: SGS Sydney - Alexandria
Initiating Contact: Emily Yin (au.samplereceipt.sydney@sgs.com)
Send Results to:- AU.Environmental.Sydney@sgs.com

Final Report Required:	**Yes** / No / NATA	Prelim Report Due:	01/05/2018	Special Prices Apply:	Yes / No
Send To:	**Us** / Client	Final Report Due:	01/05/2018	Quote No:	Client:**Environmental Investigation
Address To:	Us / **Client*** (Address As Below)				
SGS Job No: SE178319	Client Job No: E23796 - 26 Elizabeth St, Liverpool NSW				

Sample No.	Sample No.	Water	Soil	Date Sampled	Ice	Acid	Other	None	SPOCAS	Remarks
SE178319.002	BH1M 0.6-0.7		X	20/04/18					X	SPOCAS
SE178319.003	BH1M 1.1-1.2		X	20/04/18					X	
SE178319.004	BH1M 2.1-2.2		X	20/04/18					X	
SE178319.005	BH1M 3.0-3.1		X	20/04/18					X	4 x soil
SE178319.006	BH1M 3.5-3.6		X	20/04/18					X	
SE178319.007	BH1M 4.4-4.5		X	20/04/18					X	
SE178319.010	BH2M 0.9-1.0		X	20/04/18					X	COURIER SERVICE: STARTRACK
SE178319.011	BH2M 1.4-1.5		X	20/04/18					X	
SE178319.012	BH2M 2.4-2.5		X	20/04/18					X	CONSIGNMENT No:
SE178319.013	BH2M 3.5-3.6		X	20/04/18					X	

Matrix: Water, Soil, Date Sampled. Preservation Method: Ice, Acid, Other, None. Analysis Required: SPOCAS.

Client Contacts for AUENVSE:
INVOICE = Invoice
SGS_SYD_REPORTS_PM = REPORTS
SGS_SYD_SRA_PM = Sample Receipt Advice

SGS Cairns Environmental
CE133191 COC
Received: 26-Apr-2018

SGS Alexandria Environmental
SE178319 SUBCON
Received: 23-Apr-2018

Relinquished By: Emily Yin	Date/Time: 24/04/2018	Received By: e9R	Date/Time 26/4/18 12:30pm

NOTES:* Client Address: Attention: SHARON_LI
Environmental Investigations
Suite 6.01, 55 Miller Street
Pyrmont NSW 2009

*** Special Prices, Quotes, Clients **MUST BE** Referred To.

SLIM CLIENT CODE: EI AUSTRALIA 12269923_11762409

SGS

CHAIN OF CUSTODY & ANALYSIS REQUEST
(FOR INTERLAB WORK)

Receiving Laboratory: **SGS Cairns**

Initiating Laboratory: **SGS Sydney - Alexandria**
Initiating Contact: Emily Yin (au.samplereceipt.sydney@sgs.com)
Send Results to:- **AU.Environmental.Sydney@sgs.com**

Final Report Required:	**Yes** / No / NATA	Prelim Report Due:	01/05/2018	Special Prices Apply:	Yes / No
Send To:	**Us** / Client	Final Report Due:	01/05/2018	Quote No:	Client:**Environmental Investigation
Address To:	Us / **Client*** (Address As Below)				
SGS Job No: SE178319	Client Job No: E23796 - 26 Elizabeth St, Liverpool NSW				

Sample No.	Sample No.	Matrix: Water	Matrix: Soil	Matrix: Date Sampled		Preservation Method: Ice	Preservation Method: Acid	Preservation Method: Other	Preservation Method: None	Analysis Required: SPOCAS	Remarks: Client Contacts for AUENVSE: **INVOICE** = Invoice **SGS_SYD_REPORTS_PM** = REPORTS **SGS_SYD_SRA_PM** = Sample Receipt Advice
SE178319.014	BH2M 4.0-4.1		X	20/04/18						X	**SPOCAS**
SE178319.015	BH2M 4.5-4.6		X	20/04/18						X	
SE178319.023	BH8M 1.9-2.0		X	20/04/18						X	
SE178319.024	BH8M 2.4-2.5		X	20/04/18						X	

COURIER SERVICE: **STARTRACK**

CONSIGNMENT No:

Relinquished By: Emily Yin	Date/Time: 24/04/2018	Received By:	Date/Time

NOTES:* Client Address: Attention: SHARON_LI
Environmental Investigations
Suite 6.01, 55 Miller Street
Pyrmont NSW 2009

*** Special Prices, Quotes, Clients **MUST BE** Referred To.

SLIM CLIENT CODE: EI AUSTRALIA 12269923_11762409

SAMPLE RECEIPT ADVICE

CE133191

CLIENT DETAILS

Contact	Sharon Li
Client	SGS EHS SYDNEY
Address	5258 201 EHS SYDNEY UNIT 16 33 MADDOX STREET ALEXANDRIA NSW 2015
Telephone	61 2 95160722
Facsimile	02 8594 0499
Email	au.environmental.sydney@sgs.com
Project	**E23796-26 Elizabeth St Liverpool NSW**
Order Number	**SE178319**
Samples	14

LABORATORY DETAILS

Manager	Jon Dicker
Laboratory	SGS Cairns Environmental
Address	Unit 2, 58 Comport St Portsmith QLD 4870
Telephone	+61 07 4035 5111
Facsimile	+61 07 4035 5122
Email	AU.Environmental.Cairns@sgs.com
Samples Received	Thu 26/4/2018
Report Due	Tue 1/5/2018
SGS Reference	**CE133191**

SUBMISSION DETAILS

This is to confirm that 14 samples were received on Thursday 26/4/2018. Results are expected to be ready by COB Tuesday 1/5/2018. Please quote SGS reference CE133191 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	SGS	Sample cooling method	Ice Bricks
Samples received in correct containers	Yes	Sample counts by matrix	14 X SOIL
Date documentation received	26/4/2018	Type of documentation received	COC
Number of eskies/boxes received	1	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	Chilled
Sufficient sample for analysis	Yes	Turnaround time requested	3 DAY TAT

Unless otherwise instructed, water and bulk samples will be held for one month from date of report, and soil samples will be held for two months.

COMMENTS

3 day tat

SAMPLE RECEIPT ADVICE

CE133191

CLIENT DETAILS

Client SGS EHS SYDNEY

Project E23796-26 Elizabeth St Liverpool NSW

SUMMARY OF ANALYSIS

No.	Sample ID	Moisture Content	SPOCAS Net Acidity Calculations	TAA (Titratable Actual Acidity)	TPA (Titratable Peroxide Acidity)
001	BH1M 0.6-0.7	1	6	7	21
002	BH1M 1.1-1.2	1	6	7	21
003	BH1M 2.1-2.2	1	6	7	21
004	BH1M 3.0-3.1	1	6	7	21
005	BH1M 3.5-3.6	1	6	7	21
006	BH1M 4.4-4.5	1	6	7	21
007	BH2M 0.9-1.0	1	6	7	21
008	BH2M 1.4-1.5	1	6	7	21
009	BH2M 2.4-2.5	1	6	7	21
010	BH2M 3.5-3.6	1	6	7	21
011	BH2M 4.0-4.1	1	6	7	21
012	BH2M 4.5-4.6	1	6	7	21
013	BH8M 1.9-2.0	1	6	7	21
014	BH8M 2.4-2.5	1	6	7	21

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

Sheet 1 of 4

Site: 26 Elizabeth St, Liverpool NSW

Project No: E23796

Laboratory: SGS Australia
Unit 16, 33 Maddox Street,
ALEXANDRIA NSW 2015
P: 02 8594 0400 F: 02 8594 0499

Sample ID	Laboratory ID	Container Type	Sampling Date	Sampling Time	WATER	SOIL	OTHERS (i.e. Fibro, Paint, etc.)	HM A /TRH/BTEX/PAHs OCP/OP/PCB/Asbestos	HM A /TRH/BTEX/PAHs	HM A /TRH/BTEX	BTEX	VOCs	Asbestos	Asbestos Quantification	pH / CEC (cation exchange)	pH / EC (electrical conductivity)	Dewatering Suite	sPOCAS	PFAS				TCLP HM B / PAH
BH1M 0.2-0.3	1	J, ZLB	20/4/18	AM		X		X															
0.6-0.7	2								X									X					
1.1-1.2	3																	X					
1.6-1.7																							
2.1-2.2	4																	X					
2.5-2.6																							
3.0-3.1	5																	X					
3.5-3.6	6																	X					
3.9-4.0																							
4.4-4.5	7																	X					
4.9-5.0																							
5.4-5.5																							

Comments

HM A: Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, Zinc

HM B: Arsenic, Cadmium, Chromium, Lead, Mercury, Nickel

Dewatering Suite: pH & EC, TDS / TDU, Hardness, Total Cyanide, Metals (Al, As, Cd, Cr, Cu, Pb, Hg, Ni, Zn), TRH (F1, F2, F3, F4), BTEX, PAH, Total Phenol

LABORATORY TURNAROUND

- [x] Standard
- [ ] 24 Hours
- [ ] 48 Hours
- [ ] 72 Hours
- [ ] Other______

Container Type:
J= solvent washed, acid rinsed, Teflon sealed, glass jar
S= solvent washed, acid rinsed glass bottle
P= natural HDPE plastic bottle
VC= glass vial, Teflon Septum
ZLB = Zip-Lock Bag

Investigator: I attest that these samples were collected in accordance with standard EI field sampling procedures.

Report with EI Waste Classification Table [ ]

Sampler's Name (EI):	Received by (SGS):
Print: SL	Print: Suba
Signature: Shuli	Signature: [signature]
Date: 23/4/18	Date: 23/04/18 @ 3—

Sample/Lab Comments:

SGS EHS Alexandria Laboratory
SE178319 COC
Received: 23-Apr-2018

eiaustralia
Contamination | Remediation | Geotechnical
Suite 6.01, 55 Miller Street,
PYRMONT NSW 2009
Ph: 9516 0722
lab@eiaustralia.com.au

IMPORTANT: Please e-mail laboratory results to: lab@eiaustralia.com.au

Sheet 2 of 4

Site: 26 Elizabeth St Liverpool NSW

Project No: E23796

Laboratory: **SGS Australia**
Unit 16, 33 Maddox Street,
ALEXANDRIA NSW 2015
P: 02 8594 0400 F: 02 8594 0499

Sample ID	Laboratory ID	Container Type	Sampling Date	Sampling Time	Sample Matrix: WATER	Sample Matrix: SOIL	Sample Matrix: OTHERS (i.e. Fibro, Paint, etc.)	Analysis: HM A /TRH/BTEX/PAHs OCP/OP/PCB/Asbestos	HM A /TRH/BTEX/PAHs	HM A /TRH/BTEX	BTEX	VOCs	Asbestos	Asbestos Quantification	pH / CEC (cation exchange)	pH / EC (electrical conductivity)	Dewatering Suite	sPOCAS	PFAS				TCLP HM B / PAH
BH2M 0.2-0.3	8	J, ZLB	20/4/18	AM		X		X															
0.5-0.6	9								X														
0.9-1.0	10																	X					
1.4-1.5	11																	X					
1.9-2.0																							
2.4-2.5	12																	X					
2.9-3.0																							
3.5-3.6	13																	X					
4.0-4.1	14																	X					
4.5-4.6	15																	X					
9.7-9.8																							
BH3 0.2-0.3	16							X															

Comments

HM A
Arsenic
Cadmium
Chromium
Copper
Lead
Mercury
Nickel
Zinc

HM B
Arsenic
Cadmium
Chromium
Lead
Mercury
Nickel

Dewatering Suite
pH & EC
TDS / TDU
Hardness
Total Cyanide
Metals (Al, As, Cd, Cr, Cu, Pb, Hg, Ni, Zn)
TRH (F1, F2, F3, F4)
BTEX
PAH
Total Phenol

LABORATORY TURNAROUND

- [x] Standard
- [ ] 24 Hours
- [ ] 48 Hours
- [ ] 72 Hours
- [ ] Other______

Container Type:
J= solvent washed, acid rinsed,Teflon sealed, glass jar
S= solvent washed, acid rinsed glass bottle
P= natural HDPE plastic bottle
VC= glass vial, Teflon Septum
ZLB = Zip-Lock Bag

Investigator: I attest that these samples were collected in accordance with standard EI field sampling procedures.

Report with EI Waste Classification Table ☐

Sampler's Name (EI):	Received by (SGS):
Print SL	Print Suba
Signature	Signature
Date 23/4/18	Date 23/04/18 @ 3.~

Sampler's Comments:

eiaustralia
Contamination | Remediation | Geotechnical

Suite 6.01, 55 Miller Street,
PYRMONT NSW 2009
Ph: 9516 0722
lab@eiaustralia.com.au

COC March 2018 FORM v.4 - SGS

IMPORTANT:
Please e-mail laboratory results to: lab@eiaustralia.com.au

Sheet 3 of 4

Site: 26 Elizabeth St Liverpool NSW

Project No: E23796

Laboratory: **SGS Australia**
Unit 16, 33 Maddox Street,
ALEXANDRIA NSW 2015
P: 02 8594 0400 F: 02 8594 0499

Sample ID	Laboratory ID	Container Type	Sampling Date	Sampling Time	WATER	SOIL	OTHERS (i.e. Fibro, Paint, etc.)	HM A /TRH/BTEX/PAHs OCP/OP/PCB/Asbestos	HM A /TRH/BTEX/PAHs	HM A /TRH/BTEX	BTEX	VOCs	Asbestos	Asbestos Quantification	pH / CEC (cation exchange)	pH / EC (electrical conductivity)	Dewatering Suite	sPOCAS	PFAS				TCLP HM B / PAH
BH3 0.9-1.0		J, ZLB	20/4/18	AM		X																	
↓ 1.4-1.5		↓	↓	↓		↓																	
↓ 1.9-2.0																							
BH4 0.2-0.3	17							X															
↓ 0.5-0.6																							
BH5 0.3-0.4	18							X															
↓ 0.6-0.7																							
BH6 0.3-0.4	19							X															
↓ 0.6-0.7	20								X														
BH7 0.2-0.3	21							X															
BH8M 0.5-0.6	22							X															
↓ 1.9-2.0	23	↓	↓	↓		↓												X					

Comments

HM A
Arsenic
Cadmium
Chromium
Copper
Lead
Mercury
Nickel
Zinc

HM B
Arsenic
Cadmium
Chromium
Lead
Mercury
Nickel

Dewatering Suite
pH & EC
TDS / TDU
Hardness
Total Cyanide
Metals (Al, As, Cd, Cr, Cu, Pb, Hg, Ni, Zn)
TRH (F1, F2, F3, F4)
BTEX
PAH
Total Phenol

LABORATORY TURNAROUND

- [x] Standard
- [ ] 24 Hours
- [ ] 48 Hours
- [ ] 72 Hours
- [ ] Other______

Container Type:
J= solvent washed, acid rinsed,Teflon sealed, glass jar
S= solvent washed, acid rinsed glass bottle
P= natural HDPE plastic bottle
VC= glass vial, Teflon Septum
ZLB = Zip-Lock Bag

Investigator: I attest that these samples were collected in accordance with standard EI field sampling procedures.

Report with EI Waste Classification Table ☐

Sampler's Name (EI):	Received by (SGS):
Print SL	Print Suba
Signature Shuli	Signature [signature]
Date 23/4/18	Date 23/04/18 @ 3.

Sampler's Comments:

IMPORTANT:
Please e-mail laboratory results to: lab@eiaustralia.com.au

eiaustralia
Contamination | Remediation | Geotechnical

Suite 6.01, 55 Miller Street,
PYRMONT NSW 2009
Ph: 9516 0722
lab@eiaustralia.com.au

Sheet 4 of 4

Site: 26 Elizabeth St Liverpool NSW

Project No: E23796

Laboratory: **SGS Australia**
Unit 16, 33 Maddox Street,
ALEXANDRIA NSW 2015
P: 02 8594 0400 F: 02 8594 0499

Sample ID	Laboratory ID	Container Type	Sampling Date	Sampling Time	WATER	SOIL	OTHERS (i.e. Fibro, Paint, etc.)	HM A /TRH/BTEX/PAHs OCP/OP/PCB/Asbestos	HM A /TRH/BTEX/PAHs	HM A /TRH/BTEX	BTEX	VOCs	Asbestos	Asbestos Quantification	pH / CEC (cation exchange)	pH / EC (electrical conductivity)	Dewatering Suite	sPOCAS	PFAS				TCLP HM B / PAH
BH8M 2.4-2.5	24	J, ZLB	20/4/18	AM		X												X					
BH9 0.2-0.3	25	↓	↓	↓		↓		X															
↓ 0.9-1.0	26	↓	↓	↓		↓			X														
1.4-1.5		↓	↓	↓		↓																	
QD1	27	J, ZLB	↓	↓		↓				X													
QR1	28	S, P, VC(x2)	↓	↓	X					X													
QRB1		S, P, VC(x2)	↓	↓	X																		
TS1	29	VC	Lab Prepared.			X					X												
TB1	30	VC				X					X												

Comments

HM A
Arsenic
Cadmium
Chromium
Copper
Lead
Mercury
Nickel
Zinc

HM B
Arsenic
Cadmium
Chromium
Lead
Mercury
Nickel

Dewatering Suite
pH & EC
TDS / TDU
Hardness
Total Cyanide
Metals (Al, As, Cd, Cr, Cu, Pb, Hg, Ni, Zn)
TRH (F1, F2, F3, F4)
BTEX
PAH
Total Phenol

LABORATORY TURNAROUND

- [x] Standard
- [ ] 24 Hours
- [ ] 48 Hours
- [ ] 72 Hours
- [ ] Other______

Container Type:
J= solvent washed, acid rinsed,Teflon sealed, glass jar
S= solvent washed, acid rinsed glass bottle
P= natural HDPE plastic bottle
VC= glass vial, Teflon Septum
ZLB = Zip-Lock Bag

Investigator: I attest that these samples were collected in accordance with standard EI field sampling procedures.

Report with EI Waste Classification Table ☐

Sampler's Name (EI):	Received by (SGS):
Print SL	Print Suba
Signature Shuli	Signature [signature]
Date 23/4/18	Date 23/04/18 @ 3~

Sampler's Comments:

eiaustralia
Contamination | Remediation | Geotechnical

Suite 6.01, 55 Miller Street,
PYRMONT NSW 2009
Ph: 9516 0722
lab@eiaustralia.com.au

IMPORTANT:
Please e-mail laboratory results to: lab@eiaustralia.com.au

SAMPLE RECEIPT ADVICE

SE178319

CLIENT DETAILS

Contact	Sharon Li
Client	EI AUSTRALIA
Address	SUITE 6.01 55 MILLER STREET PYRMONT NSW 2009
Telephone	61 2 95160722
Facsimile	(Not specified)
Email	sharon.li@eiaustralia.com.au
Project	**E23796 - 26 Elizabeth St, Liverpool NSW**
Order Number	**E23796**
Samples	30

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
Samples Received	Mon 23/4/2018
Report Due	Tue 1/5/2018
SGS Reference	**SE178319**

SUBMISSION DETAILS

This is to confirm that 30 samples were received on Monday 23/4/2018. Results are expected to be ready by COB Tuesday 1/5/2018. Please quote SGS reference SE178319 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	SGS	Sample cooling method	Ice Bricks
Samples received in correct containers	Yes	Sample counts by matrix	29 Soil, 1 Water
Date documentation received	23/4/2018	Type of documentation received	COC
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	4.3°C	Sufficient sample for analysis	Yes
Turnaround time requested	Standard		

Unless otherwise instructed, water and bulk samples will be held for one month from date of report, and soil samples will be held for two months.

COMMENTS

SPOCAS subcontracted to SGS Cairns, 2/58 Comport St, Portsmith QLD 4870, NATA Accreditation Number: 2562, Site Number: 3146.
Fourteen soil and one water sample have been placed on hold.

SAMPLE RECEIPT ADVICE

SE178319

CLIENT DETAILS

Client EI AUSTRALIA

Project E23796 - 26 Elizabeth St, Liverpool NSW

SUMMARY OF ANALYSIS

No.	Sample ID	OC Pesticides in Soil	OP Pesticides in Soil	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	PCBs in Soil	Total Recoverable Elements in Soil/Waste	TRH (Total Recoverable Hydrocarbons) in Soil	VOC's in Soil	Volatile Petroleum Hydrocarbons in Soil
001	BH1M 0.2-0.3	29	14	26	11	7	10	12	8
002	BH1M 0.6-0.7	-	-	26	-	7	10	12	8
008	BH2M 0.2-0.3	29	14	26	11	7	10	12	8
009	BH2M 0.5-0.6	-	-	26	-	7	10	12	8
016	BH3 0.2-0.3	29	14	26	11	7	10	12	8
017	BH4 0.2-0.3	29	14	26	11	7	10	12	8
018	BH5 0.3-0.4	29	14	26	11	7	10	12	8
019	BH6 0.3-0.4	29	14	26	11	7	10	12	8
020	BH6 0.6-0.7	-	-	26	-	7	10	12	8
021	BH7 0.2-0.3	29	14	26	11	7	10	12	8
022	BH8M 0.5-0.6	29	14	26	11	7	10	12	8

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

SAMPLE RECEIPT ADVICE

SE178319

CLIENT DETAILS

Client EI AUSTRALIA

Project E23796 - 26 Elizabeth St, Liverpool NSW

SUMMARY OF ANALYSIS

No.	Sample ID	OC Pesticides in Soil	OP Pesticides in Soil	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	PCBs in Soil	Total Recoverable Elements in Soil/Waste	TRH (Total Recoverable Hydrocarbons) in Soil	VOC's in Soil	Volatile Petroleum Hydrocarbons in Soil
025	BH9 0.2-0.3	29	14	26	11	7	10	12	8
026	BH9 0.9-1.0	-	-	26	-	7	10	12	8
027	QD1	-	-	-	-	7	10	12	8
029	TS1	-	-	-	-	-	-	12	-
030	TB1	-	-	-	-	-	-	12	-

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

SAMPLE RECEIPT ADVICE

SE178319

CLIENT DETAILS

Client EI AUSTRALIA

Project E23796 - 26 Elizabeth St, Liverpool NSW

SUMMARY OF ANALYSIS

No.	Sample ID	Fibre Identification in soil	Mercury in Soil	Moisture Content	Sample Subcontracted
001	BH1M 0.2-0.3	2	1	1	-
002	BH1M 0.6-0.7	-	1	1	1
003	BH1M 1.1-1.2	-	-	-	1
004	BH1M 2.1-2.2	-	-	-	1
005	BH1M 3.0-3.1	-	-	-	1
006	BH1M 3.5-3.6	-	-	-	1
007	BH1M 4.4-4.5	-	-	-	1
008	BH2M 0.2-0.3	2	1	1	-
009	BH2M 0.5-0.6	-	1	1	-
010	BH2M 0.9-1.0	-	-	-	1
011	BH2M 1.4-1.5	-	-	-	1
012	BH2M 2.4-2.5	-	-	-	1
013	BH2M 3.5-3.6	-	-	-	1
014	BH2M 4.0-4.1	-	-	-	1
015	BH2M 4.5-4.6	-	-	-	1
016	BH3 0.2-0.3	2	1	1	-
017	BH4 0.2-0.3	2	1	1	-
018	BH5 0.3-0.4	2	1	1	-
019	BH6 0.3-0.4	2	1	1	-
020	BH6 0.6-0.7	-	1	1	-
021	BH7 0.2-0.3	2	1	1	-
022	BH8M 0.5-0.6	2	1	1	-
023	BH8M 1.9-2.0	-	-	-	1
024	BH8M 2.4-2.5	-	-	-	1

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

CLIENT DETAILS

Client EI AUSTRALIA

Project E23796 - 26 Elizabeth St, Liverpool NSW

SUMMARY OF ANALYSIS

No.	Sample ID	Fibre Identification in soil	Mercury in Soil	Moisture Content	VOCs in Water
025	BH9 0.2-0.3	2	1	1	-
026	BH9 0.9-1.0	-	1	1	-
027	QD1	-	1	1	-
028	QR1	-	-	-	12
030	TB1	-	-	1	-

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

SAMPLE RECEIPT ADVICE

SE178319

CLIENT DETAILS

Client EI AUSTRALIA

Project E23796 - 26 Elizabeth St, Liverpool NSW

SUMMARY OF ANALYSIS

No.	Sample ID	Mercury (dissolved) in Water	Trace Metals (Dissolved) in Water by ICPMS	TRH (Total Recoverable Hydrocarbons) in Water	Volatile Petroleum Hydrocarbons in Water
028	QR1	1	7	10	8

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

Sheet 1 of 1

Site: 26 Elizabeth St. Liverpool NSW.

Project No: E23796

Laboratory: **SGS Australia**
Unit 16, 33 Maddox Street,
ALEXANDRIA NSW 2015
P: 02 8594 0400 F: 02 8594 0499

Sample ID	Laboratory ID	Container Type	Sampling Date	Sampling Time	WATER	SOIL	OTHERS (i.e. Fibro, Paint, etc.)	HM A /TRH/BTEX/PAHs OCP/OP/PCB/Asbestos	HM A /TRH/BTEX/PAHs	HM A /TRH/BTEX	BTEX	VOCs	Asbestos	Asbestos Quantification	pH / CEC (cation exchange)	pH / EC (electrical conductivity)	Dewatering Suite	sPOCAS	PFAS	Phenols	Hardness	Aluminium	TCLP HM B / PAH
BH1M	1	S,P,VCx2	2-5-18	AM	X				X			X								X	X	X	
BH2M	2	S,P,VCx2							X			X								X	X	X	
BH3M	3	S,P,VCx2							X			X								X	X	X	
GWQD1	4	S,P,VCx2								X												X	
GWQRB1	8	S,P,VCx2																					
GWQR1	5	S,P,VCx2								X												X	
GWTS1	6	VC	Lab prepared								X												
GWTB1	7	VC									X												

Comments

HM A
Arsenic
Cadmium
Chromium
Copper
Lead
Mercury
Nickel
Zinc

HM B
Arsenic
Cadmium
Chromium
Lead
Mercury
Nickel

Dewatering Suite
pH & EC
TDS / TDU
Hardness
Total Cyanide
Metals (Al, As, Cd, Cr, Cu, Pb, Hg, Ni, Zn)
TRH (F1, F2, F3, F4)
BTEX
PAH
Total Phenol

LABORATORY TURNAROUND

- [x] Standard
- [ ] 24 Hours
- [ ] 48 Hours
- [ ] 72 Hours
- [ ] Other_____

Container Type:
J= solvent washed, acid rinsed,Teflon sealed, glass jar
S= solvent washed, acid rinsed glass bottle
P= natural HDPE plastic bottle
VC= glass vial, Teflon Septum
ZLB = Zip-Lock Bag

Investigator: I attest that these samples were collected in accordance with standard EI field sampling procedures.

Report with EI Waste Classification Table ☐

Sampler's Name (EI):	Received by (SGS):
Print SL	Print
Signature Shuli	Signature Uess
Date 3-5-18	Date 03/05/18 11:45

Sampler's Comments:

SGS EHS Alexandria Laboratory
SE178657 COC
Received: 03 – May – 2018

IMPORTANT:
Please e-mail laboratory results to: lab@eiaustralia.com.au

eiaustralia
Contamination | Remediation | Geotechnical

Suite 6.01, 55 Miller Street,
PYRMONT NSW 2009
Ph: 9516 0722
lab@eiaustralia.com.au

COC March 2018 FORM v.4 - SGS

SAMPLE RECEIPT ADVICE

SE178657

CLIENT DETAILS

Contact	Sharon Li
Client	EI AUSTRALIA
Address	SUITE 6.01 55 MILLER STREET PYRMONT NSW 2009
Telephone	61 2 95160722
Facsimile	(Not specified)
Email	sharon.li@eiaustralia.com.au
Project	**E23796 - 26 Elizabeth St, Liverpool NSW**
Order Number	**E23796**
Samples	7

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
Samples Received	Thu 3/5/2018
Report Due	Thu 10/5/2018
SGS Reference	**SE178657**

SUBMISSION DETAILS

This is to confirm that 7 samples were received on Thursday 3/5/2018. Results are expected to be ready by COB Thursday 10/5/2018. Please quote SGS reference SE178657 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	SGS	Sample cooling method	Ice Bricks
Samples received in correct containers	Yes	Sample counts by matrix	7 Water
Date documentation received	3/5/2018	Type of documentation received	COC
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	12.0°C	Sufficient sample for analysis	Yes
Turnaround time requested	Standard		

Unless otherwise instructed, water and bulk samples will be held for one month from date of report, and soil samples will be held for two months.

COMMENTS

SAMPLE RECEIPT ADVICE

SE178657

CLIENT DETAILS

Client EI AUSTRALIA

Project E23796 - 26 Elizabeth St, Liverpool NSW

SUMMARY OF ANALYSIS

No.	Sample ID	Mercury (dissolved) in Water	Metals in Water (Dissolved) by ICPOES	PAH (Polynuclear Aromatic Hydrocarbons) in Water	Total Phenolics in Water	Trace Metals (Dissolved) in Water by ICPMS	TRH (Total Recoverable Hydrocarbons) in Water	VOCs in Water	Volatile Petroleum Hydrocarbons in Water
001	BH1M	1	1	22	1	8	10	79	8
002	BH2M	1	1	22	1	8	10	79	8
003	BH8M	1	1	22	1	8	10	79	8
004	GWQD1	1	-	-	-	8	10	12	8
005	GWQR1	1	-	-	-	8	10	12	8
006	GWTS1	-	-	-	-	-	-	12	-
007	GWTB1	-	-	-	-	-	-	12	-

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

Sheet 1 of 1

Site: 26 Elizabeth St Liverpool NSW

Project No: E23796

Laboratory: Envirolab Services
12 Ashley Street,
CHATSWOOD NSW 2067
P: 02 9910 6200

Sample ID	Laboratory ID	Container Type	Sampling Date	Sampling Time	WATER	SOIL	OTHERS (i.e. Fibro, Paint, etc.)	HM A /TRH/BTEX/PAHs OCP/OP/PCB/Asbestos	HM A /TRH/BTEX/PAHs	HM A /TRH/BTEX	TRH/BTEX/Lead	TRH/BTEX	PAHs	VOCs	Asbestos	pH / CEC (cation exchange)	pH / EC (electrical conductivity)	sPOCAS				TCLP PAHs	TCLP HM A	TCLP HM B
QT1	1	J	20/4/18	AM		X				X														

Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200
Job No: 190116
Date Received: 23.4.18
Time Received: 17:20
Received By: JE
Temp: Cool/Ambient 11.9°C
Cooling: Ice/Icepack
Security: Intact/Broken/None

Comments

HM A
Arsenic
Cadmium
Chromium
Copper
Lead
Mercury
Nickel
Zinc

HM B
Arsenic
Cadmium
Chromium
Lead
Mercury
Nickel

LABORATORY TURNAROUND

- [X] Standard
- [ ] 24 Hours
- [ ] 48 Hours
- [ ] 72 Hours
- [ ] Other______

Investigator: I attest that these samples were collected in accordance with standard EI field sampling procedures.

Sampler's Comments:

Sampler's Name (EI):	Received by (Envirolab):
	ELS
Print SL	Print JE
Signature Shuli	Signature
Date 23/4/18	Date 23.4.18

Container Type:
J= solvent washed, acid rinsed,Teflon sealed, glass jaR
S= solvent washed, acid rinsed glass bottle
P= natural HDPE plastic bottle
VC= glass vial, Teflon Septum
ZLB = Zip-Lock Bag

IMPORTANT:
Please e-mail laboratory results to: lab@eiaustralia.com.au

eiaustralia
Contamination | Remediation | Geotechnical
Suite 6.01, 55 Miller Street, PYRMONT NSW 2009
Ph: 9516 0722
lab@eiaustralia.com.au

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

SAMPLE RECEIPT ADVICE

Client Details	
Client	EI Australia
Attention	Lab Email

Sample Login Details	
Your reference	E23796, Liverpool
Envirolab Reference	190116
Date Sample Received	23/04/2018
Date Instructions Received	23/04/2018
Date Results Expected to be Reported	01/05/2018

Sample Condition	
Samples received in appropriate condition for analysis	YES
No. of Samples Provided	1 Soil
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	11.9
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments
Nil

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	**Phone: 02 9910 6200**
Fax: 02 9910 6201	**Fax: 02 9910 6201**
Email: ahie@envirolab.com.au	**Email: jhurst@envirolab.com.au**

Analysis Underway, details on the following page:

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	Acid Extractable metalsin soil
QT1	✓	✓	✓

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info
Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.
Requests for longer term sample storage must be received in writing.

Sheet 1 of 1

Site: 26 Elizabeth St Liverpool NSW

Project No: E23796

Laboratory: **Envirolab Services**
12 Ashley Street,
CHATSWOOD NSW 2067
P: 02 9910 6200

Sample ID	Laboratory ID	Container Type	Sampling Date	Sampling Time	WATER	SOIL	OTHERS (i.e. Fibro, Paint, etc.)	HM A /TRH/BTEX/PAHs OCP/OP/PCB/Asbestos	HM A /TRH/BTEX/PAHs	HM A /TRH/BTEX	TRH/BTEX/Lead	TRH/BTEX	PAHs	VOCs	Asbestos	pH / CEC (cation exchange)	pH / EC (electrical conductivity)	sPOCAS	Aluminium			TCLP PAHs	TCLP HM A	TCLP HM B
GWQT1	1	S,P,VCx2	2-5-18	AM	X					X									X					

Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200
Job No: 190745
Date Received: 3/5/18
Time Received: 15:30 12.4°C
Received By: JG
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

Comments

HM A
Arsenic
Cadmium
Chromium
Copper
Lead
Mercury
Nickel
Zinc

HM B
Arsenic
Cadmium
Chromium
Lead
Mercury
Nickel

LABORATORY TURNAROUND

- [x] Standard
- [ ] 24 Hours
- [ ] 48 Hours
- [ ] 72 Hours
- [ ] Other______

Investigator: I attest that these samples were collected in accordance with standard EI field sampling procedures.

Sampler's Comments:

Sampler's Name (EI):	Received by (Envirolab):
Print SL.	Print JG
Signature	Signature
Date 3-5-18.	Date 03.05.18

Container Type:
J= solvent washed, acid rinsed,Teflon sealed, glass jaR
S= solvent washed, acid rinsed glass bottle
P= natural HDPE plastic bottle
VC= glass vial, Teflon Septum
ZLB = Zip-Lock Bag

IMPORTANT:
Please e-mail laboratory results to: lab@eiaustralia.com.au

eiaustralia
Contamination | Remediation | Geotechnical
Suite 6.01, 55 Miller Street, PYRMONT NSW 2009
Ph: 9516 0722
lab@eiaustralia.com.au

APPENDIX I

Laboratory Analytical Reports

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Sharon Li
Client	EI AUSTRALIA
Address	SUITE 6.01 55 MILLER STREET PYRMONT NSW 2009
Telephone	61 2 95160722
Facsimile	02 8594 0499
Email	au.environmental.sydney@sgs.com
Project	**E23796-26 Elizabeth St Liverpool NSW**
Order Number	**SE178319**
Samples	14

LABORATORY DETAILS

Manager	Jon Dicker
Laboratory	SGS Cairns Environmental
Address	Unit 2, 58 Comport St Portsmith QLD 4870
Telephone	+61 07 4035 5111
Facsimile	+61 07 4035 5122
Email	AU.Environmental.Cairns@sgs.com
SGS Reference	**CE133191 R0**
Date Received	26 Apr 2018
Date Reported	01 May 2018

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(3146).

SIGNATORIES

Anthony Nilsson
Operations Manager

Jon Dicker
Manager Northern QLD

Parameter	Units	LOR	Sample Number: CE133191.001 Sample Matrix: Soil Sample Date: 20 Apr 2018 Sample Name: BH1M 0.6-0.7	CE133191.002 Soil 20 Apr 2018 BH1M 1.1-1.2	CE133191.003 Soil 20 Apr 2018 BH1M 2.1-2.2	CE133191.004 Soil 20 Apr 2018 BH1M 3.0-3.1

Moisture Content   Method: AN002   Tested: 26/4/2018

% Moisture	%w/w	0.5	17	20	20	13

TAA (Titratable Actual Acidity)   Method: AN219   Tested: 30/4/2018

pH KCl	pH Units	-	6.6	5.7	4.9	6.0
Titratable Actual Acidity	kg H2SO4/T	0.25	<0.25	0.61	0.86	0.31
Titratable Actual Acidity (TAA) moles H+/tonne	moles H+/T	5	<5	12	17	6
Titratable Actual Acidity (TAA) S%w/w	%w/w S	0.01	<0.01	0.02	0.03	0.01
Sulphur (SKCl)	%w/w	0.005	<0.005	<0.005	0.012	0.009
Calcium (CaKCl)	%w/w	0.005	0.14	0.11	0.018	0.013
Magnesium (MgKCl)	%w/w	0.005	0.020	0.088	0.059	0.082

TPA (Titratable Peroxide Acidity)   Method: AN218   Tested: 30/4/2018

Peroxide pH (pH Ox)	pH Units	-	7.5	6.0	5.5	6.5
TPA as kg H_2SO_4/tonne	kg H2SO4/T	0.25	<0.25	0.49	2.0	<0.25
TPA as moles H+/tonne	moles H+/T	5	<5	10	40	<5
TPA as S % W/W	%w/w S	0.01	<0.01	0.02	0.06	<0.01
Titratable Sulfidic Acidity as moles H+/tonne	moles H+/T	5	<5	<5	22	<5
Titratable Sulfidic Acidity as kg H_2SO_4/tonne	kg H2SO4/T	0.25	<0.25	<0.25	1.1	<0.25
Titratable Sulfidic Acidity as S % W/W	%w/w S	0.01	<0.01	<0.01	0.04	<0.01
ANCE as % $CaCO_3$	% CaCO3	0.01	0.40	<0.01	<0.01	0.25
ANCE as moles H+/tonne	moles H+/T	5	80	<5	<5	50
ANCE as S % W/W	%w/w S	0.01	0.13	<0.01	<0.01	0.08
Peroxide Oxidisable Sulphur (Spos)	%w/w	0.005	0.006	0.018	0.024	<0.005
Peroxide Oxidisable Sulphur as moles H+/tonne	moles H+/T	5	<5	11	15	<5
Sulphur (Sp)	%w/w	0.005	0.007	0.021	0.036	0.014
Calcium (Cap)	%w/w	0.005	0.17	0.12	0.038	0.015
Reacted Calcium (CaA)	%w/w	0.005	0.031	0.007	0.020	<0.005
Reacted Calcium (CaA)	moles H+/T	5	16	<5	10	<5
Magnesium (Mgp)	%w/w	0.005	0.023	0.090	0.12	0.083
Reacted Magnesium (MgA)	%w/w	0.005	<0.005	<0.005	0.060	<0.005
Reacted Magnesium (MgA)	moles H+/T	5	<5	<5	50	<5
Net Acid Soluble Sulphur as % w/w	%w/w	0.005	-	-	-	-
Net Acid Soluble Sulphur as moles H+/tonne	moles H+/T	5	-	-	-	-

SPOCAS Net Acidity Calculations   Method: AN220   Tested: 1/5/2018

s-Net Acidity	%w/w S	0.01	<0.01	0.04	0.05	<0.01
a-Net Acidity	moles H+/T	5	<5	24	32	<5
Liming Rate	kg CaCO3/T	0.1	<0.1	1.8	2.4	<0.1
Verification s-Net Acidity	%w/w S	-20	-0.08	0.01	0.01	-0.05
a-Net Acidity without ANCE	moles H+/T	5	<5	24	32	9
Liming Rate without ANCE	kg CaCO3/T	0.1	<0.1	1.8	2.4	NA

Parameter	Units	LOR	CE133191.005	CE133191.006	CE133191.007	CE133191.008
Sample Matrix			Soil	Soil	Soil	Soil
Sample Date			20 Apr 2018	20 Apr 2018	20 Apr 2018	20 Apr 2018
Sample Name			BH1M 3.5-3.6	BH1M 4.4-4.5	BH2M 0.9-1.0	BH2M 1.4-1.5

Moisture Content Method: AN002 Tested: 26/4/2018

Parameter	Units	LOR	CE133191.005	CE133191.006	CE133191.007	CE133191.008
% Moisture	%w/w	0.5	16	9.3	19	17

TAA (Titratable Actual Acidity) Method: AN219 Tested: 30/4/2018

Parameter	Units	LOR	CE133191.005	CE133191.006	CE133191.007	CE133191.008
pH KCl	pH Units	-	6.0	6.6	6.6	6.7
Titratable Actual Acidity	kg H2SO4/T	0.25	<0.25	<0.25	<0.25	<0.25
Titratable Actual Acidity (TAA) moles H+/tonne	moles H+/T	5	<5	<5	<5	<5
Titratable Actual Acidity (TAA) S%w/w	%w/w S	0.01	<0.01	<0.01	<0.01	<0.01
Sulphur (SKCl)	%w/w	0.005	0.010	0.005	0.006	<0.005
Calcium (CaKCl)	%w/w	0.005	0.010	0.014	0.17	0.10
Magnesium (MgKCl)	%w/w	0.005	0.086	0.054	0.073	0.052

TPA (Titratable Peroxide Acidity) Method: AN218 Tested: 30/4/2018

Parameter	Units	LOR	CE133191.005	CE133191.006	CE133191.007	CE133191.008
Peroxide pH (pH Ox)	pH Units	-	6.9	8.7	7.1	6.9
TPA as kg H_2SO_4/tonne	kg H2SO4/T	0.25	<0.25	<0.25	<0.25	<0.25
TPA as moles H+/tonne	moles H+/T	5	<5	<5	<5	<5
TPA as S % W/W	%w/w S	0.01	<0.01	<0.01	<0.01	<0.01
Titratable Sulfidic Acidity as moles H+/tonne	moles H+/T	5	<5	<5	<5	<5
Titratable Sulfidic Acidity as kg H_2SO_4/tonne	kg H2SO4/T	0.25	<0.25	<0.25	<0.25	<0.25
Titratable Sulfidic Acidity as S % W/W	%w/w S	0.01	<0.01	<0.01	<0.01	<0.01
ANCE as % $CaCO_3$	% CaCO3	0.01	0.25	0.25	0.45	0.30
ANCE as moles H+/tonne	moles H+/T	5	50	50	90	60
ANCE as S % W/W	%w/w S	0.01	0.08	0.08	0.14	0.10
Peroxide Oxidisable Sulphur (Spos)	%w/w	0.005	<0.005	<0.005	0.015	<0.005
Peroxide Oxidisable Sulphur as moles H+/tonne	moles H+/T	5	<5	<5	9	<5
Sulphur (Sp)	%w/w	0.005	0.013	0.005	0.021	<0.005
Calcium (Cap)	%w/w	0.005	0.012	0.020	0.20	0.11
Reacted Calcium (CaA)	%w/w	0.005	<0.005	0.006	0.021	0.006
Reacted Calcium (CaA)	moles H+/T	5	<5	<5	10	<5
Magnesium (Mgp)	%w/w	0.005	0.091	0.059	0.083	0.059
Reacted Magnesium (MgA)	%w/w	0.005	0.005	<0.005	0.010	0.007
Reacted Magnesium (MgA)	moles H+/T	5	<5	<5	8	6
Net Acid Soluble Sulphur as % w/w	%w/w	0.005	-	-	-	-
Net Acid Soluble Sulphur as moles H+/tonne	moles H+/T	5	-	-	-	-

SPOCAS Net Acidity Calculations Method: AN220 Tested: 1/5/2018

Parameter	Units	LOR	CE133191.005	CE133191.006	CE133191.007	CE133191.008
s-Net Acidity	%w/w S	0.01	<0.01	<0.01	<0.01	<0.01
a-Net Acidity	moles H+/T	5	<5	<5	<5	<5
Liming Rate	kg CaCO3/T	0.1	<0.1	<0.1	<0.1	<0.1
Verification s-Net Acidity	%w/w S	-20	-0.05	-0.05	-0.09	-0.06
a-Net Acidity without ANCE	moles H+/T	5	7	<5	9	<5
Liming Rate without ANCE	kg CaCO3/T	0.1	NA	<0.1	NA	<0.1

Parameter	Units	LOR	CE133191.009 Soil 20 Apr 2018 BH2M 2.4-2.5	CE133191.010 Soil 20 Apr 2018 BH2M 3.5-3.6	CE133191.011 Soil 20 Apr 2018 BH2M 4.0-4.1	CE133191.012 Soil 20 Apr 2018 BH2M 4.5-4.6

Sample Number / Sample Matrix / Sample Date / Sample Name

Moisture Content   Method: AN002   Tested: 26/4/2018

Parameter	Units	LOR	CE133191.009	CE133191.010	CE133191.011	CE133191.012
% Moisture	%w/w	0.5	**14**	**15**	**16**	**14**

TAA (Titratable Actual Acidity)   Method: AN219   Tested: 30/4/2018

Parameter	Units	LOR	CE133191.009	CE133191.010	CE133191.011	CE133191.012
pH KCl	pH Units	-	**7.0**	**6.6**	**6.5**	**6.7**
Titratable Actual Acidity	kg H2SO4/T	0.25	<0.25	<0.25	<0.25	<0.25
Titratable Actual Acidity (TAA) moles H+/tonne	moles H+/T	5	<5	<5	<5	<5
Titratable Actual Acidity (TAA) S%w/w	%w/w S	0.01	<0.01	<0.01	<0.01	<0.01
Sulphur (SKCl)	%w/w	0.005	<0.005	<0.005	<0.005	**0.006**
Calcium (CaKCl)	%w/w	0.005	**0.11**	**0.011**	**0.009**	**0.018**
Magnesium (MgKCl)	%w/w	0.005	**0.073**	**0.067**	**0.063**	**0.059**

TPA (Titratable Peroxide Acidity)   Method: AN218   Tested: 30/4/2018

Parameter	Units	LOR	CE133191.009	CE133191.010	CE133191.011	CE133191.012
Peroxide pH (pH Ox)	pH Units	-	**7.0**	**6.7**	**6.6**	**6.7**
TPA as kg H_2SO_4/tonne	kg H2SO4/T	0.25	<0.25	<0.25	<0.25	<0.25
TPA as moles H+/tonne	moles H+/T	5	<5	<5	<5	<5
TPA as S % W/W	%w/w S	0.01	<0.01	<0.01	<0.01	<0.01
Titratable Sulfidic Acidity as moles H+/tonne	moles H+/T	5	<5	<5	<5	<5
Titratable Sulfidic Acidity as kg H_2SO_4/tonne	kg H2SO4/T	0.25	<0.25	<0.25	<0.25	<0.25
Titratable Sulfidic Acidity as S % W/W	%w/w S	0.01	<0.01	<0.01	<0.01	<0.01
ANCE as % $CaCO_3$	% CaCO3	0.01	**0.40**	**0.25**	**0.25**	**0.25**
ANCE as moles H+/tonne	moles H+/T	5	**80**	**50**	**50**	**50**
ANCE as S % W/W	%w/w S	0.01	**0.13**	**0.08**	**0.08**	**0.08**
Peroxide Oxidisable Sulphur (Spos)	%w/w	0.005	**0.006**	<0.005	<0.005	<0.005
Peroxide Oxidisable Sulphur as moles H+/tonne	moles H+/T	5	<5	<5	<5	<5
Sulphur (Sp)	%w/w	0.005	**0.010**	**0.007**	**0.005**	**0.010**
Calcium (Cap)	%w/w	0.005	**0.12**	**0.012**	**0.010**	**0.021**
Reacted Calcium (CaA)	%w/w	0.005	**0.019**	<0.005	<0.005	<0.005
Reacted Calcium (CaA)	moles H+/T	5	**10**	<5	<5	<5
Magnesium (Mgp)	%w/w	0.005	**0.082**	**0.071**	**0.069**	**0.070**
Reacted Magnesium (MgA)	%w/w	0.005	**0.010**	<0.005	**0.007**	**0.010**
Reacted Magnesium (MgA)	moles H+/T	5	**8**	<5	**5**	**8**
Net Acid Soluble Sulphur as % w/w	%w/w	0.005	-	-	-	-
Net Acid Soluble Sulphur as moles H+/tonne	moles H+/T	5	-	-	-	-

SPOCAS Net Acidity Calculations   Method: AN220   Tested: 1/5/2018

Parameter	Units	LOR	CE133191.009	CE133191.010	CE133191.011	CE133191.012
s-Net Acidity	%w/w S	0.01	<0.01	<0.01	<0.01	<0.01
a-Net Acidity	moles H+/T	5	<5	<5	<5	<5
Liming Rate	kg CaCO3/T	0.1	<0.1	<0.1	<0.1	<0.1
Verification s-Net Acidity	%w/w S	-20	**-0.08**	**-0.05**	**-0.05**	**-0.05**
a-Net Acidity without ANCE	moles H+/T	5	<5	<5	<5	<5
Liming Rate without ANCE	kg CaCO3/T	0.1	<0.1	<0.1	<0.1	<0.1

Parameter	Units	LOR	CE133191.013	CE133191.014
Sample Number			CE133191.013	CE133191.014
Sample Matrix			Soil	Soil
Sample Date			20 Apr 2018	20 Apr 2018
Sample Name			BH8M 1.9-2.0	BH8M 2.4-2.5

Moisture Content Method: AN002 Tested: 26/4/2018

% Moisture	%w/w	0.5	18	17

TAA (Titratable Actual Acidity) Method: AN219 Tested: 30/4/2018

pH KCl	pH Units	-	4.5	4.5
Titratable Actual Acidity	kg H2SO4/T	0.25	2.3	2.5
Titratable Actual Acidity (TAA) moles H+/tonne	moles H+/T	5	47	50
Titratable Actual Acidity (TAA) S%w/w	%w/w S	0.01	0.08	0.08
Sulphur (SKCl)	%w/w	0.005	0.037	0.048
Calcium (CaKCl)	%w/w	0.005	0.026	0.021
Magnesium (MgKCl)	%w/w	0.005	0.099	0.11

TPA (Titratable Peroxide Acidity) Method: AN218 Tested: 30/4/2018

Peroxide pH (pH Ox)	pH Units	-	5.0	5.0
TPA as kg H_2SO_4/tonne	kg H2SO4/T	0.25	2.9	3.3
TPA as moles H+/tonne	moles H+/T	5	60	67
TPA as S % W/W	%w/w S	0.01	0.10	0.11
Titratable Sulfidic Acidity as moles H+/tonne	moles H+/T	5	12	17
Titratable Sulfidic Acidity as kg H_2SO_4/tonne	kg H2SO4/T	0.25	0.61	0.86
Titratable Sulfidic Acidity as S % W/W	%w/w S	0.01	0.02	0.03
ANCE as % $CaCO_3$	% CaCO3	0.01	<0.01	<0.01
ANCE as moles H+/tonne	moles H+/T	5	<5	<5
ANCE as S % W/W	%w/w S	0.01	<0.01	<0.01
Peroxide Oxidisable Sulphur (Spos)	%w/w	0.005	0.010	0.017
Peroxide Oxidisable Sulphur as moles H+/tonne	moles H+/T	5	6	10
Sulphur (Sp)	%w/w	0.005	0.047	0.065
Calcium (Cap)	%w/w	0.005	0.029	0.025
Reacted Calcium (CaA)	%w/w	0.005	<0.005	<0.005
Reacted Calcium (CaA)	moles H+/T	5	<5	<5
Magnesium (Mgp)	%w/w	0.005	0.10	0.11
Reacted Magnesium (MgA)	%w/w	0.005	<0.005	0.008
Reacted Magnesium (MgA)	moles H+/T	5	<5	6
Net Acid Soluble Sulphur as % w/w	%w/w	0.005	-	-
Net Acid Soluble Sulphur as moles H+/tonne	moles H+/T	5	-	-

SPOCAS Net Acidity Calculations Method: AN220 Tested: 1/5/2018

s-Net Acidity	%w/w S	0.01	0.09	0.10
a-Net Acidity	moles H+/T	5	53	60
Liming Rate	kg CaCO3/T	0.1	4.0	4.5
Verification s-Net Acidity	%w/w S	-20	0.00	0.01
a-Net Acidity without ANCE	moles H+/T	5	53	60
Liming Rate without ANCE	kg CaCO3/T	0.1	4.0	4.5

QC SUMMARY

MB blank results are compared to the Limit of Reporting
LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.
DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula : *the absolute difference of the two results divided by the average of the two results as a percentage.* Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

TAA (Titratable Actual Acidity) **Method: ME-(AU)-[ENV]AN219**

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
pH KCl	LB055913	pH Units	-	5.8	0 - 2%	101%
Titratable Actual Acidity	LB055913	kg H2SO4/T	0.25	<0.25	0%	NA
Titratable Actual Acidity (TAA) moles H+/tonne	LB055913	moles H+/T	5	<5	0%	92%
Titratable Actual Acidity (TAA) S%w/w	LB055913	%w/w S	0.01	<0.01	0%	92%
Sulphur (SKCl)	LB055913	%w/w	0.005	<0.005	0%	96%
Calcium (CaKCl)	LB055913	%w/w	0.005	<0.005	2%	92%
Magnesium (MgKCl)	LB055913	%w/w	0.005	<0.005	1 - 2%	87%

TPA (Titratable Peroxide Acidity) **Method: ME-(AU)-[ENV]AN218**

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Peroxide pH (pH Ox)	LB055910	pH Units	-	6.1	0 - 10%	105%
TPA as kg H_2SO_4/tonne	LB055910	kg H2SO4/T	0.25	<0.25	0%	99%
TPA as moles H+/tonne	LB055910	moles H+/T	5	<5	0%	99%
TPA as S % W/W	LB055910	%w/w S	0.01	<0.01	0%	99%
ANCE as % $CaCO_3$	LB055910	% CaCO3	0.01	<0.01	0 - 13%	
ANCE as moles H+/tonne	LB055910	moles H+/T	5	<5	0 - 13%	
ANCE as S % W/W	LB055910	%w/w S	0.01	<0.01	0 - 13%	
Sulphur (Sp)	LB055910	%w/w	0.005	<0.005	3 - 6%	86%
Calcium (Cap)	LB055910	%w/w	0.005	<0.005	2 - 3%	108%
Magnesium (Mgp)	LB055910	%w/w	0.005	<0.005	1 - 4%	91%

METHOD SUMMARY

METHOD	METHODOLOGY SUMMARY
AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
AN218	Soil samples are subjected to extreme oxidising conditions using hydrogen peroxide. Continuous application of heat and peroxide ensure all sulfide is converted to sulfuric acid. Excess peroxide is broken down by a copper catalyst prior to titration for acidity. Calcium, magnesium, and sulfur are determined by ICP-OES. Also included is a carbonate modification step which, depending on pH after the initial oxidation, gives a measure of ANC.
AN219	Dried pulped sample is extracted for 4 hours in a 1 M KCl solution. The ratio of sample to solution is 1:40. The extract is titrated for acidity. Calcium, magnesium, and sulfur are determined by ICP-AES.
AN220	SPOCAS Suite: Scheme for the calculation of net acidities and liming rates using a Fineness Factor of 1.5.

FOOTNOTES

IS	Insufficient sample for analysis.	LOR	Limit of Reporting
LNR	Sample listed, but not received.	↑↓	Raised or Lowered Limit of Reporting
*	NATA accreditation does not cover the performance of this service.	QFH	QC result is above the upper tolerance
**	Indicative data, theoretical holding time exceeded.	QFL	QC result is below the lower tolerance
		-	The sample was not analysed for this analyte
		NVL	Not Validated

Samples analysed as received.
Solid samples expressed on a dry weight basis.

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calcuated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the " Total" LOR will be the sum of those two LORs.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.
Note that in terms of units of radioactivity:

a. 1 Bq is equivalent to 27 pCi
b. 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here : http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS		LABORATORY DETAILS	
Contact	Sharon Li	Manager	Huong Crawford
Client	EI AUSTRALIA	Laboratory	SGS Alexandria Environmental
Address	SUITE 6.01 55 MILLER STREET PYRMONT NSW 2009	Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	61 2 95160722	Telephone	+61 2 8594 0400
Facsimile	(Not specified)	Facsimile	+61 2 8594 0499
Email	sharon.li@eiaustralia.com.au	Email	au.environmental.sydney@sgs.com
Project	**E23796 - 26 Elizabeth St, Liverpool NSW**	SGS Reference	**SE178319 R0**
Order Number	**E23796**	Date Received	23/4/2018
Samples	30	Date Reported	1/5/2018

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

No respirable fibres detected in all soil samples using trace analysis technique.

Sample # 8 : Asbestos found in approx 40x15x3mm cement sheet fragments.

Asbestos analysed by Approved Identifier Yusuf Kuthpudin .

SIGNATORIES

Akheeqar Beniameen
Chemist

Dong Liang
Metals/Inorganics Team Leader

Kamrul Ahsan
Senior Chemist

Ly Kim Ha
Organic Section Head

Ravee Sivasubramaniam
Hygiene Team Leader

VOC's in Soil [AN433] Tested: 27/4/2018

PARAMETER	UOM	LOR	BH1M 0.2-0.3 SOIL - 20/4/2018 SE178319.001	BH1M 0.6-0.7 SOIL - 20/4/2018 SE178319.002	BH2M 0.2-0.3 SOIL - 20/4/2018 SE178319.008	BH2M 0.5-0.6 SOIL - 20/4/2018 SE178319.009	BH3 0.2-0.3 SOIL - 20/4/2018 SE178319.016
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

PARAMETER	UOM	LOR	BH4 0.2-0.3 SOIL - 20/4/2018 SE178319.017	BH5 0.3-0.4 SOIL - 20/4/2018 SE178319.018	BH6 0.3-0.4 SOIL - 20/4/2018 SE178319.019	BH6 0.6-0.7 SOIL - 20/4/2018 SE178319.020	BH7 0.2-0.3 SOIL - 20/4/2018 SE178319.021
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

PARAMETER	UOM	LOR	BH8M 0.5-0.6 SOIL - 20/4/2018 SE178319.022	BH9 0.2-0.3 SOIL - 20/4/2018 SE178319.025	BH9 0.9-1.0 SOIL - 20/4/2018 SE178319.026	QD1 SOIL - 20/4/2018 SE178319.027	TS1 SOIL - 20/4/2018 SE178319.029
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	[79%]
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	[79%]
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	[76%]
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	[82%]
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	[81%]
Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	-
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	-
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	-

PARAMETER	UOM	LOR	TB1 SOIL - 20/4/2018 SE178319.030
Benzene	mg/kg	0.1	<0.1
Toluene	mg/kg	0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2
o-xylene	mg/kg	0.1	<0.1
Total Xylenes	mg/kg	0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1

Volatile Petroleum Hydrocarbons in Soil [AN433] Tested: 27/4/2018

PARAMETER	UOM	LOR	BH1M 0.2-0.3 SOIL - 20/4/2018 SE178319.001	BH1M 0.6-0.7 SOIL - 20/4/2018 SE178319.002	BH2M 0.2-0.3 SOIL - 20/4/2018 SE178319.008	BH2M 0.5-0.6 SOIL - 20/4/2018 SE178319.009	BH3 0.2-0.3 SOIL - 20/4/2018 SE178319.016
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

PARAMETER	UOM	LOR	BH4 0.2-0.3 SOIL - 20/4/2018 SE178319.017	BH5 0.3-0.4 SOIL - 20/4/2018 SE178319.018	BH6 0.3-0.4 SOIL - 20/4/2018 SE178319.019	BH6 0.6-0.7 SOIL - 20/4/2018 SE178319.020	BH7 0.2-0.3 SOIL - 20/4/2018 SE178319.021
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

PARAMETER	UOM	LOR	BH8M 0.5-0.6 SOIL - 20/4/2018 SE178319.022	BH9 0.2-0.3 SOIL - 20/4/2018 SE178319.025	BH9 0.9-1.0 SOIL - 20/4/2018 SE178319.026	QD1 SOIL - 20/4/2018 SE178319.027
TRH C6-C9	mg/kg	20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 24/4/2018

PARAMETER	UOM	LOR	BH1M 0.2-0.3 SOIL - 20/4/2018 SE178319.001	BH1M 0.6-0.7 SOIL - 20/4/2018 SE178319.002	BH2M 0.2-0.3 SOIL - 20/4/2018 SE178319.008	BH2M 0.5-0.6 SOIL - 20/4/2018 SE178319.009	BH3 0.2-0.3 SOIL - 20/4/2018 SE178319.016
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH >C10-C16	mg/kg	25	<25	<25	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110	<110
TRH C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210	<210	<210

PARAMETER	UOM	LOR	BH4 0.2-0.3 SOIL - 20/4/2018 SE178319.017	BH5 0.3-0.4 SOIL - 20/4/2018 SE178319.018	BH6 0.3-0.4 SOIL - 20/4/2018 SE178319.019	BH6 0.6-0.7 SOIL - 20/4/2018 SE178319.020	BH7 0.2-0.3 SOIL - 20/4/2018 SE178319.021
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	<45	67
TRH C29-C36	mg/kg	45	<45	<45	<45	<45	56
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH >C10-C16	mg/kg	25	<25	<25	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90	120
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110	120
TRH C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210	<210	<210

PARAMETER	UOM	LOR	BH8M 0.5-0.6 SOIL - 20/4/2018 SE178319.022	BH9 0.2-0.3 SOIL - 20/4/2018 SE178319.025	BH9 0.9-1.0 SOIL - 20/4/2018 SE178319.026	QD1 SOIL - 20/4/2018 SE178319.027
TRH C10-C14	mg/kg	20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	93	58	<45	<45
TRH C29-C36	mg/kg	45	62	92	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100
TRH >C10-C16	mg/kg	25	32	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	32	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	120	120	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	160	150	<110	<110
TRH C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210	<210

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 24/4/2018

PARAMETER	UOM	LOR	BH1M 0.2-0.3 SOIL - 20/4/2018 SE178319.001	BH1M 0.6-0.7 SOIL - 20/4/2018 SE178319.002	BH2M 0.2-0.3 SOIL - 20/4/2018 SE178319.008	BH2M 0.5-0.6 SOIL - 20/4/2018 SE178319.009	BH3 0.2-0.3 SOIL - 20/4/2018 SE178319.016
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	0.2	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	0.3	0.2	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	0.4	0.2	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	0.2	0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	0.2	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	0.2	0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	0.2	0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	0.2	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	0.3	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	0.4	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	0.3	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	2.0	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	2.0	<0.8	<0.8

PARAMETER	UOM	LOR	BH4 0.2-0.3 SOIL - 20/4/2018 SE178319.017	BH5 0.3-0.4 SOIL - 20/4/2018 SE178319.018	BH6 0.3-0.4 SOIL - 20/4/2018 SE178319.019	BH6 0.6-0.7 SOIL - 20/4/2018 SE178319.020	BH7 0.2-0.3 SOIL - 20/4/2018 SE178319.021
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	0.3	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	0.7	0.2	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	0.7	0.2	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	0.5	0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	0.4	0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	0.5	0.2	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	0.3	0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	0.5	0.2	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	0.3	0.2	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	0.3	0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	0.6	0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	0.7	0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	0.7	0.3	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	4.5	1.4	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	4.5	1.4	<0.8	<0.8

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 24/4/2018 (continued)

PARAMETER	UOM	LOR	BH8M 0.5-0.6 SOIL - 20/4/2018 SE178319.022	BH9 0.2-0.3 SOIL - 20/4/2018 SE178319.025	BH9 0.9-1.0 SOIL - 20/4/2018 SE178319.026
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	0.3	0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	0.7	0.4	<0.1
Pyrene	mg/kg	0.1	0.7	0.4	<0.1
Benzo(a)anthracene	mg/kg	0.1	0.4	0.3	<0.1
Chrysene	mg/kg	0.1	0.4	0.2	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	0.4	0.3	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	0.3	0.2	<0.1
Benzo(a)pyrene	mg/kg	0.1	0.4	0.3	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	0.3	0.2	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	0.2	0.2	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	0.5	0.4	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	0.6	0.5	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	0.6	0.4	<0.2
Total PAH (18)	mg/kg	0.8	4.2	2.6	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	4.2	2.6	<0.8

OC Pesticides in Soil [AN420] Tested: 24/4/2018

PARAMETER	UOM	LOR	BH1M 0.2-0.3 SOIL - 20/4/2018 SE178319.001	BH2M 0.2-0.3 SOIL - 20/4/2018 SE178319.008	BH3 0.2-0.3 SOIL - 20/4/2018 SE178319.016	BH4 0.2-0.3 SOIL - 20/4/2018 SE178319.017	BH5 0.3-0.4 SOIL - 20/4/2018 SE178319.018
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total CLP OC Pesticides	mg/kg	1	<1	<1	<1	<1	<1

OC Pesticides in Soil [AN420] Tested: 24/4/2018 (continued)

PARAMETER	UOM	LOR	BH6 0.3-0.4 SOIL - 20/4/2018 SE178319.019	BH7 0.2-0.3 SOIL - 20/4/2018 SE178319.021	BH8M 0.5-0.6 SOIL - 20/4/2018 SE178319.022	BH9 0.2-0.3 SOIL - 20/4/2018 SE178319.025
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Total CLP OC Pesticides	mg/kg	1	<1	<1	<1	<1

OP Pesticides in Soil [AN420] Tested: 24/4/2018

PARAMETER	UOM	LOR	BH1M 0.2-0.3 SOIL - 20/4/2018 SE178319.001	BH2M 0.2-0.3 SOIL - 20/4/2018 SE178319.008	BH3 0.2-0.3 SOIL - 20/4/2018 SE178319.016	BH4 0.2-0.3 SOIL - 20/4/2018 SE178319.017	BH5 0.3-0.4 SOIL - 20/4/2018 SE178319.018
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	<1.7	<1.7	<1.7

PARAMETER	UOM	LOR	BH6 0.3-0.4 SOIL - 20/4/2018 SE178319.019	BH7 0.2-0.3 SOIL - 20/4/2018 SE178319.021	BH8M 0.5-0.6 SOIL - 20/4/2018 SE178319.022	BH9 0.2-0.3 SOIL - 20/4/2018 SE178319.025
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	<1.7	<1.7

PCBs in Soil [AN420] Tested: 24/4/2018

PARAMETER	UOM	LOR	BH1M 0.2-0.3 SOIL - 20/4/2018 SE178319.001	BH2M 0.2-0.3 SOIL - 20/4/2018 SE178319.008	BH3 0.2-0.3 SOIL - 20/4/2018 SE178319.016	BH4 0.2-0.3 SOIL - 20/4/2018 SE178319.017	BH5 0.3-0.4 SOIL - 20/4/2018 SE178319.018
Arochlor 1016	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1221	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1232	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1242	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1248	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1254	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1260	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1262	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1268	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PCBs (Arochlors)	mg/kg	1	<1	<1	<1	<1	<1

PARAMETER	UOM	LOR	BH6 0.3-0.4 SOIL - 20/4/2018 SE178319.019	BH7 0.2-0.3 SOIL - 20/4/2018 SE178319.021	BH8M 0.5-0.6 SOIL - 20/4/2018 SE178319.022	BH9 0.2-0.3 SOIL - 20/4/2018 SE178319.025
Arochlor 1016	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1221	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1232	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1242	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1248	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1254	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1260	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1262	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1268	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Total PCBs (Arochlors)	mg/kg	1	<1	<1	<1	<1

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 27/4/2018

PARAMETER	UOM	LOR	BH1M 0.2-0.3 SOIL - 20/4/2018 SE178319.001	BH1M 0.6-0.7 SOIL - 20/4/2018 SE178319.002	BH2M 0.2-0.3 SOIL - 20/4/2018 SE178319.008	BH2M 0.5-0.6 SOIL - 20/4/2018 SE178319.009	BH3 0.2-0.3 SOIL - 20/4/2018 SE178319.016
Arsenic, As	mg/kg	3	6	5	5	6	6
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.3	10	12	19	9.9	11
Copper, Cu	mg/kg	0.5	18	6.3	21	15	8.5
Lead, Pb	mg/kg	1	510	28	130	50	56
Nickel, Ni	mg/kg	0.5	5.0	2.2	15	2.5	2.5
Zinc, Zn	mg/kg	0.5	58	8.0	120	41	50

PARAMETER	UOM	LOR	BH4 0.2-0.3 SOIL - 20/4/2018 SE178319.017	BH5 0.3-0.4 SOIL - 20/4/2018 SE178319.018	BH6 0.3-0.4 SOIL - 20/4/2018 SE178319.019	BH6 0.6-0.7 SOIL - 20/4/2018 SE178319.020	BH7 0.2-0.3 SOIL - 20/4/2018 SE178319.021
Arsenic, As	mg/kg	3	4	7	7	4	5
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	0.5
Chromium, Cr	mg/kg	0.3	9.1	19	14	9.0	27
Copper, Cu	mg/kg	0.5	14	27	26	8.3	26
Lead, Pb	mg/kg	1	77	120	160	29	230
Nickel, Ni	mg/kg	0.5	2.4	7.3	5.3	1.6	35
Zinc, Zn	mg/kg	0.5	130	130	140	9.7	190

PARAMETER	UOM	LOR	BH8M 0.5-0.6 SOIL - 20/4/2018 SE178319.022	BH9 0.2-0.3 SOIL - 20/4/2018 SE178319.025	BH9 0.9-1.0 SOIL - 20/4/2018 SE178319.026	QD1 SOIL - 20/4/2018 SE178319.027
Arsenic, As	mg/kg	3	6	7	8	5
Cadmium, Cd	mg/kg	0.3	0.4	0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.3	13	19	19	18
Copper, Cu	mg/kg	0.5	28	32	12	25
Lead, Pb	mg/kg	1	250	160	21	260
Nickel, Ni	mg/kg	0.5	11	4.3	2.9	11
Zinc, Zn	mg/kg	0.5	350	200	12	220

Mercury in Soil [AN312] Tested: 27/4/2018

PARAMETER	UOM	LOR	BH1M 0.2-0.3 SOIL - 20/4/2018 SE178319.001	BH1M 0.6-0.7 SOIL - 20/4/2018 SE178319.002	BH2M 0.2-0.3 SOIL - 20/4/2018 SE178319.008	BH2M 0.5-0.6 SOIL - 20/4/2018 SE178319.009	BH3 0.2-0.3 SOIL - 20/4/2018 SE178319.016
Mercury	mg/kg	0.05	0.75	<0.05	0.20	0.30	0.07

PARAMETER	UOM	LOR	BH4 0.2-0.3 SOIL - 20/4/2018 SE178319.017	BH5 0.3-0.4 SOIL - 20/4/2018 SE178319.018	BH6 0.3-0.4 SOIL - 20/4/2018 SE178319.019	BH6 0.6-0.7 SOIL - 20/4/2018 SE178319.020	BH7 0.2-0.3 SOIL - 20/4/2018 SE178319.021
Mercury	mg/kg	0.05	0.12	0.32	0.50	<0.05	<0.05

PARAMETER	UOM	LOR	BH8M 0.5-0.6 SOIL - 20/4/2018 SE178319.022	BH9 0.2-0.3 SOIL - 20/4/2018 SE178319.025	BH9 0.9-1.0 SOIL - 20/4/2018 SE178319.026	QD1 SOIL - 20/4/2018 SE178319.027
Mercury	mg/kg	0.05	0.18	0.14	<0.05	0.09

Moisture Content [AN002] Tested: 30/4/2018

PARAMETER	UOM	LOR	BH1M 0.2-0.3 SOIL - 20/4/2018 SE178319.001	BH1M 0.6-0.7 SOIL - 20/4/2018 SE178319.002	BH2M 0.2-0.3 SOIL - 20/4/2018 SE178319.008	BH2M 0.5-0.6 SOIL - 20/4/2018 SE178319.009	BH3 0.2-0.3 SOIL - 20/4/2018 SE178319.016
% Moisture	%w/w	0.5	16	13	16	17	14

PARAMETER	UOM	LOR	BH4 0.2-0.3 SOIL - 20/4/2018 SE178319.017	BH5 0.3-0.4 SOIL - 20/4/2018 SE178319.018	BH6 0.3-0.4 SOIL - 20/4/2018 SE178319.019	BH6 0.6-0.7 SOIL - 20/4/2018 SE178319.020	BH7 0.2-0.3 SOIL - 20/4/2018 SE178319.021
% Moisture	%w/w	0.5	10	21	17	15	15

PARAMETER	UOM	LOR	BH8M 0.5-0.6 SOIL - 20/4/2018 SE178319.022	BH9 0.2-0.3 SOIL - 20/4/2018 SE178319.025	BH9 0.9-1.0 SOIL - 20/4/2018 SE178319.026	QD1 SOIL - 20/4/2018 SE178319.027	TB1 SOIL - 20/4/2018 SE178319.030
% Moisture	%w/w	0.5	25	17	20	19	<0.5

Fibre Identification in soil [AN602] Tested: 30/4/2018

PARAMETER	UOM	LOR	BH1M 0.2-0.3 SOIL - 20/4/2018 SE178319.001	BH2M 0.2-0.3 SOIL - 20/4/2018 SE178319.008	BH3 0.2-0.3 SOIL - 20/4/2018 SE178319.016	BH4 0.2-0.3 SOIL - 20/4/2018 SE178319.017	BH5 0.3-0.4 SOIL - 20/4/2018 SE178319.018
Asbestos Detected	No unit	-	No	Yes	No	No	No
Estimated Fibres*	%w/w	0.01	<0.01	>0.01	<0.01	<0.01	<0.01

PARAMETER	UOM	LOR	BH6 0.3-0.4 SOIL - 20/4/2018 SE178319.019	BH7 0.2-0.3 SOIL - 20/4/2018 SE178319.021	BH8M 0.5-0.6 SOIL - 20/4/2018 SE178319.022	BH9 0.2-0.3 SOIL - 20/4/2018 SE178319.025
Asbestos Detected	No unit	-	No	No	No	No
Estimated Fibres*	%w/w	0.01	<0.01	<0.01	>0.01	<0.01

Sample Subcontracted [] Tested: 1/5/2018

PARAMETER	UOM	LOR	BH1M 0.6-0.7 SOIL - 20/4/2018 SE178319.002	BH1M 1.1-1.2 SOIL - 20/4/2018 SE178319.003	BH1M 2.1-2.2 SOIL - 20/4/2018 SE178319.004	BH1M 3.0-3.1 SOIL - 20/4/2018 SE178319.005	BH1M 3.5-3.6 SOIL - 20/4/2018 SE178319.006
Sample Subcontracted*	No unit	-	Subcontracted	Subcontracted	Subcontracted	Subcontracted	Subcontracted

PARAMETER	UOM	LOR	BH1M 4.4-4.5 SOIL - 20/4/2018 SE178319.007	BH2M 0.9-1.0 SOIL - 20/4/2018 SE178319.010	BH2M 1.4-1.5 SOIL - 20/4/2018 SE178319.011	BH2M 2.4-2.5 SOIL - 20/4/2018 SE178319.012	BH2M 3.5-3.6 SOIL - 20/4/2018 SE178319.013
Sample Subcontracted*	No unit	-	Subcontracted	Subcontracted	Subcontracted	Subcontracted	Subcontracted

PARAMETER	UOM	LOR	BH2M 4.0-4.1 SOIL - 20/4/2018 SE178319.014	BH2M 4.5-4.6 SOIL - 20/4/2018 SE178319.015	BH8M 1.9-2.0 SOIL - 20/4/2018 SE178319.023	BH8M 2.4-2.5 SOIL - 20/4/2018 SE178319.024
Sample Subcontracted*	No unit	-	Subcontracted	Subcontracted	Subcontracted	Subcontracted

VOCs in Water [AN433] Tested: 24/4/2018

PARAMETER	UOM	LOR	QR1 WATER - 20/4/2018 SE178319.028
Benzene	µg/L	0.5	<0.5
Toluene	µg/L	0.5	<0.5
Ethylbenzene	µg/L	0.5	<0.5
m/p-xylene	µg/L	1	<1
o-xylene	µg/L	0.5	<0.5
Total Xylenes	µg/L	1.5	<1.5
Total BTEX	µg/L	3	<3
Naphthalene	µg/L	0.5	<0.5

Volatile Petroleum Hydrocarbons in Water [AN433] Tested: 24/4/2018

PARAMETER	UOM	LOR	QR1 WATER - 20/4/2018 SE178319.028
TRH C6-C9	µg/L	40	<40
Benzene (F0)	µg/L	0.5	<0.5
TRH C6-C10	µg/L	50	<50
TRH C6-C10 minus BTEX (F1)	µg/L	50	<50

TRH (Total Recoverable Hydrocarbons) in Water [AN403] Tested: 26/4/2018

PARAMETER	UOM	LOR	QR1 WATER - 20/4/2018 SE178319.028
TRH C10-C14	µg/L	50	<50
TRH C15-C28	µg/L	200	<200
TRH C29-C36	µg/L	200	<200
TRH C37-C40	µg/L	200	<200
TRH >C10-C16	µg/L	60	<60
TRH >C16-C34 (F3)	µg/L	500	<500
TRH >C34-C40 (F4)	µg/L	500	<500
TRH C10-C36	µg/L	450	<450
TRH C10-C40	µg/L	650	<650
TRH >C10-C16 - Naphthalene (F2)	µg/L	60	<60

Trace Metals (Dissolved) in Water by ICPMS [AN318] Tested: 26/4/2018

PARAMETER	UOM	LOR	QR1 WATER - 20/4/2018 SE178319.028
Arsenic, As	μg/L	1	<1
Cadmium, Cd	μg/L	0.1	<0.1
Chromium, Cr	μg/L	1	<1
Copper, Cu	μg/L	1	<1
Lead, Pb	μg/L	1	<1
Nickel, Ni	μg/L	1	<1
Zinc, Zn	μg/L	5	<5

Mercury (dissolved) in Water [AN311(Perth)/AN312] Tested: 26/4/2018

PARAMETER	UOM	LOR	QR1 WATER - 20/4/2018 SE178319.028
Mercury	mg/L	0.0001	<0.0001

METHOD	METHODOLOGY SUMMARY
AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
AN020	Unpreserved water sample is filtered through a 0.45µm membrane filter and acidified with nitric acid similar to APHA3030B.
AN040/AN320	A portion of sample is digested with nitric acid to decompose organic matter and hydrochloric acid to complete the digestion of metals. The digest is then analysed by ICP OES with metals results reported on the dried sample basis. Based on USEPA method 200.8 and 6010C.
AN040	A portion of sample is digested with Nitric acid to decompose organic matter and Hydrochloric acid to complete the digestion of metals and then filtered for analysis by ASS or ICP as per USEPA Method 200.8.
AN311(Perth)/AN312	Mercury by Cold Vapour AAS in Waters: Mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500.
AN312	Mercury by Cold Vapour AAS in Soils: After digestion with nitric acid, hydrogen peroxide and hydrochloric acid , mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser . Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500
AN318	Determination of elements at trace level in waters by ICP-MS technique, in accordance with USEPA 6020A.
AN403	Total Recoverable Hydrocarbons: Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C6-C9, C10-C14, C15-C28 and C29-C36 and in recognition of the NEPM 1999 (2013), >C10-C16 (F2), >C16-C34 (F3) and >C34-C40 (F4). F2 is reported directly and also corrected by subtracting Naphthalene (from VOC method AN433) where available.
AN403	Additionally, the volatile C6-C9 fraction may be determined by a purge and trap technique and GC /MS because of the potential for volatiles loss. Total Petroleum Hydrocarbons (TPH) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents .
AN403	The GC/FID method is not well suited to the analysis of refined high boiling point materials (ie lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol if care to control volatility is taken. This method will detect naturally occurring hydrocarbons, lipids, animal fats, phenols and PAHs if they are present at sufficient levels, dependent on the use of specific cleanup /fractionation techniques. Reference USEPA 3510B, 8015B.
AN420	(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN420	SVOC Compounds: Semi-Volatile Organic Compounds (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols in soils, sediments and waters are determined by GCMS /ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN433	VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC`s are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.
AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocably identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf) The fibres detected may or may not be asbestos fibres.
AN602	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples, Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."

AN602	The sample can be reported “no asbestos found at the reporting limit of 0.1 g/kg” (<0.01%w/w) where AN602 section 4.5 of this method has been followed, and if- (a) no trace asbestos fibres have been detected (i.e. no ‘respirable’ fibres): (b) the estimated weight of non-respirable asbestos fibre bundles and/or the estimated weight of asbestos in asbestos-containing materials are found to be less than 0.1g/kg: and (c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions.

FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
**	Indicative data, theoretical holding time exceeded.	NVL	Not validated.	LOR	Limit of Reporting.
		IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		

Samples analysed as received.
Solid samples expressed on a dry weight basis.

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calculated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the " Total" LOR will be the sum of those two LORs.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.
Note that in terms of units of radioactivity:

a. 1 Bq is equivalent to 27 pCi
b. 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here : http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Sharon Li
Client	EI AUSTRALIA
Address	SUITE 6.01 55 MILLER STREET PYRMONT NSW 2009
Telephone	61 2 95160722
Facsimile	(Not specified)
Email	sharon.li@eiaustralia.com.au
Project	**E23796 - 26 Elizabeth St, Liverpool NSW**
Order Number	**E23796**
Samples	9

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE178319 R0**
Date Received	23 Apr 2018
Date Reported	01 May 2018

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

No respirable fibres detected in all soil samples using trace analysis technique.

Sample # 8 : Asbestos found in approx 40x15x3mm cement sheet fragments.

Asbestos analysed by Approved Identifier Yusuf Kuthpudin .

SIGNATORIES

Akheeqar Beniameen
Chemist

Dong Liang
Metals/Inorganics Team Leader

Kamrul Ahsan
Senior Chemist

Ly Kim Ha
Organic Section Head

Ravee Sivasubramaniam
Hygiene Team Leader

ANALYTICAL REPORT

RESULTS

Fibre Identification in soil — Method AN602

Laboratory Reference	Client Reference	Matrix	Sample Description	Date Sampled	Fibre Identification	Est.%w/w*
SE178319.001	BH1M 0.2-0.3	Soil	241g Clay,Sand,Soil, Rocks	20 Apr 2018	No Asbestos Found	<0.01
SE178319.008	BH2M 0.2-0.3	Soil	225g Clay,Sand,Soil, Rocks	20 Apr 2018	Chrysotile & Crocidolite Asbestos Found	>0.01
SE178319.016	BH3 0.2-0.3	Soil	209g Clay,Sand,Soil, Rocks	20 Apr 2018	No Asbestos Found	<0.01
SE178319.017	BH4 0.2-0.3	Soil	235g Clay,Sand,Soil, Rocks	20 Apr 2018	No Asbestos Found	<0.01
SE178319.018	BH5 0.3-0.4	Soil	267g Clay,Sand,Soil, Rocks	20 Apr 2018	No Asbestos Found	<0.01
SE178319.019	BH6 0.3-0.4	Soil	159g Clay,Sand,Soil, Rocks	20 Apr 2018	No Asbestos Found	<0.01
SE178319.021	BH7 0.2-0.3	Soil	278g Clay,Sand,Soil, Rocks	20 Apr 2018	No Asbestos Found	<0.01
SE178319.022	BH8M 0.5-0.6	Soil	387g Clay,Sand,Soil, Rocks	20 Apr 2018	No Asbestos Found Organic Fibres Detected	>0.01
SE178319.025	BH9 0.2-0.3	Soil	167g Clay,Sand,Soil, Rocks	20 Apr 2018	No Asbestos Found	<0.01

METHOD SUMMARY

METHOD	METHODOLOGY SUMMARY
AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocably identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf) The fibres detected may or may not be asbestos fibres.
AN602	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples , Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."
AN602	The sample can be reported “no asbestos found at the reporting limit of 0.1 g/kg” (<0.01%w/w) where AN602 section 4.5 of this method has been followed, and if- (a) no trace asbestos fibres have been detected (i.e. no ‘respirable’ fibres): (b) the estimated weight of non-respirable asbestos fibre bundles and/or the estimated weight of asbestos in asbestos-containing materials are found to be less than 0.1g/kg: and (c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions.

FOOTNOTES

Amosite	-	Brown Asbestos	NA	-	Not Analysed
Chrysotile	-	White Asbestos	LNR	-	Listed, Not Required
Crocidolite	-	Blue Asbestos	*	-	NATA accreditation does not cover the performance of this service .
Amphiboles	-	Amosite and/or Crocidolite	**	-	Indicative data, theoretical holding time exceeded.

(In reference to soil samples only) This report does not comply with the analytical reporting recommendations in the Western Australian Department of Health Guidelines for the Assessment and Remediation and Management of Asbestos Contaminated sites in Western Australia - May 2009.

Sampled by the client.

Where reported: 'Asbestos Detected': Asbestos detected by polarised light microscopy, including dispersion staining.
Where reported: 'No Asbestos Found': No Asbestos Found by polarised light microscopy , including dispersion staining.
Where reported: 'UMF Detected': Mineral fibres of unknown type detected by polarised light microscopy, including dispersion staining. Confirmation by another independent analytical technique may be necessary.

Even after disintegration it can be very difficult, or impossible, to detect the presence of asbestos in some asbestos -containing bulk materials using polarised light microscopy. This is due to the low grade or small length or diameter of asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials.

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here : http://www.sgs.com.au/~/media/Local/Australia/Documents/ Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS		LABORATORY DETAILS	
Contact	Sharon Li	Manager	Jon Dicker
Client	EI AUSTRALIA	Laboratory	SGS Cairns Environmental
Address	SUITE 6.01 55 MILLER STREET PYRMONT NSW 2009	Address	Unit 2, 58 Comport St Portsmith QLD 4870
Telephone	61 2 95160722	Telephone	+61 07 4035 5111
Facsimile	02 8594 0499	Facsimile	+61 07 4035 5122
Email	au.environmental.sydney@sgs.com	Email	AU.Environmental.Cairns@sgs.com
Project	**E23796-26 Elizabeth St Liverpool NSW**	SGS Reference	**CE133191 R0**
Order Number	**SE178319**	Date Received	26 Apr 2018
Samples	14	Date Reported	01 May 2018

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(3146).

SIGNATORIES

Anthony Nilsson
Operations Manager

Jon Dicker
Manager Northern QLD

Parameter	Units	LOR	CE133191.001 Soil 20 Apr 2018 BH1M 0.6-0.7	CE133191.002 Soil 20 Apr 2018 BH1M 1.1-1.2	CE133191.003 Soil 20 Apr 2018 BH1M 2.1-2.2	CE133191.004 Soil 20 Apr 2018 BH1M 3.0-3.1
Moisture Content Method: AN002 Tested: 26/4/2018						
% Moisture	%w/w	0.5	17	20	20	13
TAA (Titratable Actual Acidity) Method: AN219 Tested: 30/4/2018						
pH KCl	pH Units	-	6.6	5.7	4.9	6.0
Titratable Actual Acidity	kg H2SO4/T	0.25	<0.25	0.61	0.86	0.31
Titratable Actual Acidity (TAA) moles H+/tonne	moles H+/T	5	<5	12	17	6
Titratable Actual Acidity (TAA) S%w/w	%w/w S	0.01	<0.01	0.02	0.03	0.01
Sulphur (SKCl)	%w/w	0.005	<0.005	<0.005	0.012	0.009
Calcium (CaKCl)	%w/w	0.005	0.14	0.11	0.018	0.013
Magnesium (MgKCl)	%w/w	0.005	0.020	0.088	0.059	0.082
TPA (Titratable Peroxide Acidity) Method: AN218 Tested: 30/4/2018						
Peroxide pH (pH Ox)	pH Units	-	7.5	6.0	5.5	6.5
TPA as kg H_2SO_4/tonne	kg H2SO4/T	0.25	<0.25	0.49	2.0	<0.25
TPA as moles H+/tonne	moles H+/T	5	<5	10	40	<5
TPA as S % W/W	%w/w S	0.01	<0.01	0.02	0.06	<0.01
Titratable Sulfidic Acidity as moles H+/tonne	moles H+/T	5	<5	<5	22	<5
Titratable Sulfidic Acidity as kg H_2SO_4/tonne	kg H2SO4/T	0.25	<0.25	<0.25	1.1	<0.25
Titratable Sulfidic Acidity as S % W/W	%w/w S	0.01	<0.01	<0.01	0.04	<0.01
ANCE as % $CaCO_3$	% CaCO3	0.01	0.40	<0.01	<0.01	0.25
ANCE as moles H+/tonne	moles H+/T	5	80	<5	<5	50
ANCE as S % W/W	%w/w S	0.01	0.13	<0.01	<0.01	0.08
Peroxide Oxidisable Sulphur (Spos)	%w/w	0.005	0.006	0.018	0.024	<0.005
Peroxide Oxidisable Sulphur as moles H+/tonne	moles H+/T	5	<5	11	15	<5
Sulphur (Sp)	%w/w	0.005	0.007	0.021	0.036	0.014
Calcium (Cap)	%w/w	0.005	0.17	0.12	0.038	0.015
Reacted Calcium (CaA)	%w/w	0.005	0.031	0.007	0.020	<0.005
Reacted Calcium (CaA)	moles H+/T	5	16	<5	10	<5
Magnesium (Mgp)	%w/w	0.005	0.023	0.090	0.12	0.083
Reacted Magnesium (MgA)	%w/w	0.005	<0.005	<0.005	0.060	<0.005
Reacted Magnesium (MgA)	moles H+/T	5	<5	<5	50	<5
Net Acid Soluble Sulphur as % w/w	%w/w	0.005	-	-	-	-
Net Acid Soluble Sulphur as moles H+/tonne	moles H+/T	5	-	-	-	-
SPOCAS Net Acidity Calculations Method: AN220 Tested: 1/5/2018						
s-Net Acidity	%w/w S	0.01	<0.01	0.04	0.05	<0.01
a-Net Acidity	moles H+/T	5	<5	24	32	<5
Liming Rate	kg CaCO3/T	0.1	<0.1	1.8	2.4	<0.1
Verification s-Net Acidity	%w/w S	-20	-0.08	0.01	0.01	-0.05
a-Net Acidity without ANCE	moles H+/T	5	<5	24	32	9
Liming Rate without ANCE	kg CaCO3/T	0.1	<0.1	1.8	2.4	NA

Parameter	Units	LOR	CE133191.005	CE133191.006	CE133191.007	CE133191.008
Sample Matrix			Soil	Soil	Soil	Soil
Sample Date			20 Apr 2018	20 Apr 2018	20 Apr 2018	20 Apr 2018
Sample Name			BH1M 3.5-3.6	BH1M 4.4-4.5	BH2M 0.9-1.0	BH2M 1.4-1.5

Moisture Content Method: AN002 Tested: 26/4/2018

% Moisture	%w/w	0.5	16	9.3	19	17

TAA (Titratable Actual Acidity) Method: AN219 Tested: 30/4/2018

pH KCl	pH Units	-	6.0	6.6	6.6	6.7
Titratable Actual Acidity	kg H2SO4/T	0.25	<0.25	<0.25	<0.25	<0.25
Titratable Actual Acidity (TAA) moles H+/tonne	moles H+/T	5	<5	<5	<5	<5
Titratable Actual Acidity (TAA) S%w/w	%w/w S	0.01	<0.01	<0.01	<0.01	<0.01
Sulphur (SKCl)	%w/w	0.005	0.010	0.005	0.006	<0.005
Calcium (CaKCl)	%w/w	0.005	0.010	0.014	0.17	0.10
Magnesium (MgKCl)	%w/w	0.005	0.086	0.054	0.073	0.052

TPA (Titratable Peroxide Acidity) Method: AN218 Tested: 30/4/2018

Peroxide pH (pH Ox)	pH Units	-	6.9	8.7	7.1	6.9
TPA as kg H_2SO_4/tonne	kg H2SO4/T	0.25	<0.25	<0.25	<0.25	<0.25
TPA as moles H+/tonne	moles H+/T	5	<5	<5	<5	<5
TPA as S % W/W	%w/w S	0.01	<0.01	<0.01	<0.01	<0.01
Titratable Sulfidic Acidity as moles H+/tonne	moles H+/T	5	<5	<5	<5	<5
Titratable Sulfidic Acidity as kg H_2SO_4/tonne	kg H2SO4/T	0.25	<0.25	<0.25	<0.25	<0.25
Titratable Sulfidic Acidity as S % W/W	%w/w S	0.01	<0.01	<0.01	<0.01	<0.01
ANCE as % $CaCO_3$	% CaCO3	0.01	0.25	0.25	0.45	0.30
ANCE as moles H+/tonne	moles H+/T	5	50	50	90	60
ANCE as S % W/W	%w/w S	0.01	0.08	0.08	0.14	0.10
Peroxide Oxidisable Sulphur (Spos)	%w/w	0.005	<0.005	<0.005	0.015	<0.005
Peroxide Oxidisable Sulphur as moles H+/tonne	moles H+/T	5	<5	<5	9	<5
Sulphur (Sp)	%w/w	0.005	0.013	0.005	0.021	<0.005
Calcium (Cap)	%w/w	0.005	0.012	0.020	0.20	0.11
Reacted Calcium (CaA)	%w/w	0.005	<0.005	0.006	0.021	0.006
Reacted Calcium (CaA)	moles H+/T	5	<5	<5	10	<5
Magnesium (Mgp)	%w/w	0.005	0.091	0.059	0.083	0.059
Reacted Magnesium (MgA)	%w/w	0.005	0.005	<0.005	0.010	0.007
Reacted Magnesium (MgA)	moles H+/T	5	<5	<5	8	6
Net Acid Soluble Sulphur as % w/w	%w/w	0.005	-	-	-	-
Net Acid Soluble Sulphur as moles H+/tonne	moles H+/T	5	-	-	-	-

SPOCAS Net Acidity Calculations Method: AN220 Tested: 1/5/2018

s-Net Acidity	%w/w S	0.01	<0.01	<0.01	<0.01	<0.01
a-Net Acidity	moles H+/T	5	<5	<5	<5	<5
Liming Rate	kg CaCO3/T	0.1	<0.1	<0.1	<0.1	<0.1
Verification s-Net Acidity	%w/w S	-20	-0.05	-0.05	-0.09	-0.06
a-Net Acidity without ANCE	moles H+/T	5	7	<5	9	<5
Liming Rate without ANCE	kg CaCO3/T	0.1	NA	<0.1	NA	<0.1

Parameter	Units	LOR	Sample Number: CE133191.009 Sample Matrix: Soil Sample Date: 20 Apr 2018 Sample Name: BH2M 2.4-2.5	CE133191.010 Soil 20 Apr 2018 BH2M 3.5-3.6	CE133191.011 Soil 20 Apr 2018 BH2M 4.0-4.1	CE133191.012 Soil 20 Apr 2018 BH2M 4.5-4.6

Moisture Content   Method: AN002   Tested: 26/4/2018

% Moisture	%w/w	0.5	14	15	16	14

TAA (Titratable Actual Acidity)   Method: AN219   Tested: 30/4/2018

pH KCl	pH Units	-	7.0	6.6	6.5	6.7
Titratable Actual Acidity	kg H2SO4/T	0.25	<0.25	<0.25	<0.25	<0.25
Titratable Actual Acidity (TAA) moles H+/tonne	moles H+/T	5	<5	<5	<5	<5
Titratable Actual Acidity (TAA) S%w/w	%w/w S	0.01	<0.01	<0.01	<0.01	<0.01
Sulphur (SKCl)	%w/w	0.005	<0.005	<0.005	<0.005	0.006
Calcium (CaKCl)	%w/w	0.005	0.11	0.011	0.009	0.018
Magnesium (MgKCl)	%w/w	0.005	0.073	0.067	0.063	0.059

TPA (Titratable Peroxide Acidity)   Method: AN218   Tested: 30/4/2018

Peroxide pH (pH Ox)	pH Units	-	7.0	6.7	6.6	6.7
TPA as kg H_2SO_4/tonne	kg H2SO4/T	0.25	<0.25	<0.25	<0.25	<0.25
TPA as moles H+/tonne	moles H+/T	5	<5	<5	<5	<5
TPA as S % W/W	%w/w S	0.01	<0.01	<0.01	<0.01	<0.01
Titratable Sulfidic Acidity as moles H+/tonne	moles H+/T	5	<5	<5	<5	<5
Titratable Sulfidic Acidity as kg H_2SO_4/tonne	kg H2SO4/T	0.25	<0.25	<0.25	<0.25	<0.25
Titratable Sulfidic Acidity as S % W/W	%w/w S	0.01	<0.01	<0.01	<0.01	<0.01
ANCE as % $CaCO_3$	% CaCO3	0.01	0.40	0.25	0.25	0.25
ANCE as moles H+/tonne	moles H+/T	5	80	50	50	50
ANCE as S % W/W	%w/w S	0.01	0.13	0.08	0.08	0.08
Peroxide Oxidisable Sulphur (Spos)	%w/w	0.005	0.006	<0.005	<0.005	<0.005
Peroxide Oxidisable Sulphur as moles H+/tonne	moles H+/T	5	<5	<5	<5	<5
Sulphur (Sp)	%w/w	0.005	0.010	0.007	0.005	0.010
Calcium (Cap)	%w/w	0.005	0.12	0.012	0.010	0.021
Reacted Calcium (CaA)	%w/w	0.005	0.019	<0.005	<0.005	<0.005
Reacted Calcium (CaA)	moles H+/T	5	10	<5	<5	<5
Magnesium (Mgp)	%w/w	0.005	0.082	0.071	0.069	0.070
Reacted Magnesium (MgA)	%w/w	0.005	0.010	<0.005	0.007	0.010
Reacted Magnesium (MgA)	moles H+/T	5	8	<5	5	8
Net Acid Soluble Sulphur as % w/w	%w/w	0.005	-	-	-	-
Net Acid Soluble Sulphur as moles H+/tonne	moles H+/T	5	-	-	-	-

SPOCAS Net Acidity Calculations   Method: AN220   Tested: 1/5/2018

s-Net Acidity	%w/w S	0.01	<0.01	<0.01	<0.01	<0.01
a-Net Acidity	moles H+/T	5	<5	<5	<5	<5
Liming Rate	kg CaCO3/T	0.1	<0.1	<0.1	<0.1	<0.1
Verification s-Net Acidity	%w/w S	-20	-0.08	-0.05	-0.05	-0.05
a-Net Acidity without ANCE	moles H+/T	5	<5	<5	<5	<5
Liming Rate without ANCE	kg CaCO3/T	0.1	<0.1	<0.1	<0.1	<0.1

Parameter	Units	LOR	CE133191.013	CE133191.014
Sample Matrix			Soil	Soil
Sample Date			20 Apr 2018	20 Apr 2018
Sample Name			BH8M 1.9-2.0	BH8M 2.4-2.5

Moisture Content Method: AN002 Tested: 26/4/2018

% Moisture	%w/w	0.5	18	17

TAA (Titratable Actual Acidity) Method: AN219 Tested: 30/4/2018

pH KCl	pH Units	-	4.5	4.5
Titratable Actual Acidity	kg H2SO4/T	0.25	2.3	2.5
Titratable Actual Acidity (TAA) moles H+/tonne	moles H+/T	5	47	50
Titratable Actual Acidity (TAA) S%w/w	%w/w S	0.01	0.08	0.08
Sulphur (SKCl)	%w/w	0.005	0.037	0.048
Calcium (CaKCl)	%w/w	0.005	0.026	0.021
Magnesium (MgKCl)	%w/w	0.005	0.099	0.11

TPA (Titratable Peroxide Acidity) Method: AN218 Tested: 30/4/2018

Peroxide pH (pH Ox)	pH Units	-	5.0	5.0
TPA as kg H_2SO_4/tonne	kg H2SO4/T	0.25	2.9	3.3
TPA as moles H+/tonne	moles H+/T	5	60	67
TPA as S % W/W	%w/w S	0.01	0.10	0.11
Titratable Sulfidic Acidity as moles H+/tonne	moles H+/T	5	12	17
Titratable Sulfidic Acidity as kg H_2SO_4/tonne	kg H2SO4/T	0.25	0.61	0.86
Titratable Sulfidic Acidity as S % W/W	%w/w S	0.01	0.02	0.03
ANCE as % $CaCO_3$	% CaCO3	0.01	<0.01	<0.01
ANCE as moles H+/tonne	moles H+/T	5	<5	<5
ANCE as S % W/W	%w/w S	0.01	<0.01	<0.01
Peroxide Oxidisable Sulphur (Spos)	%w/w	0.005	0.010	0.017
Peroxide Oxidisable Sulphur as moles H+/tonne	moles H+/T	5	6	10
Sulphur (Sp)	%w/w	0.005	0.047	0.065
Calcium (Cap)	%w/w	0.005	0.029	0.025
Reacted Calcium (CaA)	%w/w	0.005	<0.005	<0.005
Reacted Calcium (CaA)	moles H+/T	5	<5	<5
Magnesium (Mgp)	%w/w	0.005	0.10	0.11
Reacted Magnesium (MgA)	%w/w	0.005	<0.005	0.008
Reacted Magnesium (MgA)	moles H+/T	5	<5	6
Net Acid Soluble Sulphur as % w/w	%w/w	0.005	-	-
Net Acid Soluble Sulphur as moles H+/tonne	moles H+/T	5	-	-

SPOCAS Net Acidity Calculations Method: AN220 Tested: 1/5/2018

s-Net Acidity	%w/w S	0.01	0.09	0.10
a-Net Acidity	moles H+/T	5	53	60
Liming Rate	kg CaCO3/T	0.1	4.0	4.5
Verification s-Net Acidity	%w/w S	-20	0.00	0.01
a-Net Acidity without ANCE	moles H+/T	5	53	60
Liming Rate without ANCE	kg CaCO3/T	0.1	4.0	4.5

QC SUMMARY

MB blank results are compared to the Limit of Reporting
LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.
DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula : *the absolute difference of the two results divided by the average of the two results as a percentage.* Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

TAA (Titratable Actual Acidity)   Method: ME-(AU)-[ENV]AN219

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
pH KCl	LB055913	pH Units	-	5.8	0 - 2%	101%
Titratable Actual Acidity	LB055913	kg H2SO4/T	0.25	<0.25	0%	NA
Titratable Actual Acidity (TAA) moles H+/tonne	LB055913	moles H+/T	5	<5	0%	92%
Titratable Actual Acidity (TAA) S%w/w	LB055913	%w/w S	0.01	<0.01	0%	92%
Sulphur (SKCl)	LB055913	%w/w	0.005	<0.005	0%	96%
Calcium (CaKCl)	LB055913	%w/w	0.005	<0.005	2%	92%
Magnesium (MgKCl)	LB055913	%w/w	0.005	<0.005	1 - 2%	87%

TPA (Titratable Peroxide Acidity)   Method: ME-(AU)-[ENV]AN218

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Peroxide pH (pH Ox)	LB055910	pH Units	-	6.1	0 - 10%	105%
TPA as kg H_2SO_4/tonne	LB055910	kg H2SO4/T	0.25	<0.25	0%	99%
TPA as moles H+/tonne	LB055910	moles H+/T	5	<5	0%	99%
TPA as S % W/W	LB055910	%w/w S	0.01	<0.01	0%	99%
ANCE as % $CaCO_3$	LB055910	% CaCO3	0.01	<0.01	0 - 13%	
ANCE as moles H+/tonne	LB055910	moles H+/T	5	<5	0 - 13%	
ANCE as S % W/W	LB055910	%w/w S	0.01	<0.01	0 - 13%	
Sulphur (Sp)	LB055910	%w/w	0.005	<0.005	3 - 6%	86%
Calcium (Cap)	LB055910	%w/w	0.005	<0.005	2 - 3%	108%
Magnesium (Mgp)	LB055910	%w/w	0.005	<0.005	1 - 4%	91%

METHOD SUMMARY

METHOD	METHODOLOGY SUMMARY
AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
AN218	Soil samples are subjected to extreme oxidising conditions using hydrogen peroxide. Continuous application of heat and peroxide ensure all sulfide is converted to sulfuric acid. Excess peroxide is broken down by a copper catalyst prior to titration for acidity. Calcium, magnesium, and sulfur are determined by ICP-OES. Also included is a carbonate modification step which, depending on pH after the initial oxidation, gives a measure of ANC.
AN219	Dried pulped sample is extracted for 4 hours in a 1 M KCl solution. The ratio of sample to solution is 1:40. The extract is titrated for acidity. Calcium, magnesium, and sulfur are determined by ICP-AES.
AN220	SPOCAS Suite: Scheme for the calculation of net acidities and liming rates using a Fineness Factor of 1.5.

FOOTNOTES

IS	Insufficient sample for analysis.	LOR	Limit of Reporting
LNR	Sample listed, but not received.	↑↓	Raised or Lowered Limit of Reporting
*	NATA accreditation does not cover the performance of this service.	QFH	QC result is above the upper tolerance
**	Indicative data, theoretical holding time exceeded.	QFL	QC result is below the lower tolerance
		-	The sample was not analysed for this analyte
		NVL	Not Validated

Samples analysed as received.
Solid samples expressed on a dry weight basis.

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calcuated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the " Total" LOR will be the sum of those two LORs.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.
Note that in terms of units of radioactivity:

a. 1 Bq is equivalent to 27 pCi
b. 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here : http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

SGS

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS		LABORATORY DETAILS	
Contact	Sharon Li	Manager	Huong Crawford
Client	EI AUSTRALIA	Laboratory	SGS Alexandria Environmental
Address	SUITE 6.01 55 MILLER STREET PYRMONT NSW 2009	Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	61 2 95160722	Telephone	+61 2 8594 0400
Facsimile	(Not specified)	Facsimile	+61 2 8594 0499
Email	sharon.li@eiaustralia.com.au	Email	au.environmental.sydney@sgs.com
Project	**E23796 - 26 Elizabeth St, Liverpool NSW**	SGS Reference	**SE178657 R0**
Order Number	**E23796**	Date Received	3/5/2018
Samples	7	Date Reported	9/5/2018

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

SIGNATORIES

Akheeqar Beniameen
Chemist

Dong Liang
Metals/Inorganics Team Leader

Kamrul Ahsan
Senior Chemist

Ly Kim Ha
Organic Section Head

VOCs in Water [AN433] Tested: 7/5/2018

PARAMETER	UOM	LOR	BH1M WATER - 2/5/2018 SE178657.001	BH2M WATER - 2/5/2018 SE178657.002	BH8M WATER - 2/5/2018 SE178657.003	GWQD1 WATER - 2/5/2018 SE178657.004	GWQR1 WATER - 2/5/2018 SE178657.005
Benzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	µg/L	0.5	<0.5	0.8	0.9	0.6	<0.5
m/p-xylene	µg/L	1	<1	<1	<1	<1	<1
o-xylene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Total Xylenes	µg/L	1.5	<1.5	<1.5	<1.5	<1.5	<1.5
Total BTEX	µg/L	3	<3	<3	<3	<3	<3
Naphthalene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dichlorodifluoromethane (CFC-12)	µg/L	5	<5	<5	<5	-	-
Chloromethane	µg/L	5	<5	<5	<5	-	-
Vinyl chloride (Chloroethene)	µg/L	0.3	<0.3	<0.3	<0.3	-	-
Bromomethane	µg/L	10	<10	<10	<10	-	-
Chloroethane	µg/L	5	<5	<5	<5	-	-
Trichlorofluoromethane	µg/L	1	<1	<1	<1	-	-
Acetone (2-propanone)	µg/L	10	<10	<10	<10	-	-
Iodomethane	µg/L	5	<5	<5	<5	-	-
1,1-dichloroethene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Acrylonitrile	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Dichloromethane (Methylene chloride)	µg/L	5	<5	<5	<5	-	-
Allyl chloride	µg/L	2	<2	<2	<2	-	-
Carbon disulfide	µg/L	2	<2	<2	<2	-	-
trans-1,2-dichloroethene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
MtBE (Methyl-tert-butyl ether)	µg/L	2	<2	<2	<2	-	-
1,1-dichloroethane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Vinyl acetate	µg/L	10	<10	<10	<10	-	-
MEK (2-butanone)	µg/L	10	<10	<10	<10	-	-
cis-1,2-dichloroethene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Bromochloromethane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Chloroform (THM)	µg/L	0.5	<0.5	<0.5	<0.5	-	-
2,2-dichloropropane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,2-dichloroethane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,1,1-trichloroethane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,1-dichloropropene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Carbon tetrachloride	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Dibromomethane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,2-dichloropropane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Trichloroethene (Trichloroethylene,TCE)	µg/L	0.5	<0.5	<0.5	<0.5	-	-
2-nitropropane	µg/L	100	<100	<100	<100	-	-
Bromodichloromethane (THM)	µg/L	0.5	<0.5	<0.5	<0.5	-	-
MIBK (4-methyl-2-pentanone)	µg/L	5	<5	<5	<5	-	-
cis-1,3-dichloropropene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
trans-1,3-dichloropropene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,1,2-trichloroethane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,3-dichloropropane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Dibromochloromethane (THM)	µg/L	0.5	<0.5	<0.5	<0.5	-	-
2-hexanone (MBK)	µg/L	5	<5	<5	<5	-	-
1,2-dibromoethane (EDB)	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Tetrachloroethene (Perchloroethylene,PCE)	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,1,1,2-tetrachloroethane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Chlorobenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Bromoform (THM)	µg/L	0.5	<0.5	<0.5	<0.5	-	-
cis-1,4-dichloro-2-butene	µg/L	1	<1	<1	<1	-	-
Styrene (Vinyl benzene)	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,1,2,2-tetrachloroethane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,2,3-trichloropropane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
trans-1,4-dichloro-2-butene	µg/L	1	<1	<1	<1	-	-

VOCs in Water [AN433] Tested: 7/5/2018 (continued)

PARAMETER	UOM	LOR	BH1M WATER - 2/5/2018 SE178657.001	BH2M WATER - 2/5/2018 SE178657.002	BH8M WATER - 2/5/2018 SE178657.003	GWQD1 WATER - 2/5/2018 SE178657.004	GWQR1 WATER - 2/5/2018 SE178657.005
Isopropylbenzene (Cumene)	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Bromobenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
n-propylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
2-chlorotoluene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
4-chlorotoluene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,3,5-trimethylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
tert-butylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,2,4-trimethylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
sec-butylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,3-dichlorobenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,4-dichlorobenzene	µg/L	0.3	<0.3	<0.3	<0.3	-	-
p-isopropyltoluene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,2-dichlorobenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
n-butylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,2-dibromo-3-chloropropane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,2,4-trichlorobenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Hexachlorobutadiene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,2,3-trichlorobenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Total VOC	µg/L	10	<10	<10	<10	-	-

VOCs in Water [AN433] Tested: 7/5/2018 (continued)

PARAMETER	UOM	LOR	GWTS1 WATER - 2/5/2018 SE178657.006	GWTB1 WATER - 2/5/2018 SE178657.007
Benzene	µg/L	0.5	[85%]	<0.5
Toluene	µg/L	0.5	[98%]	<0.5
Ethylbenzene	µg/L	0.5	[95%]	<0.5
m/p-xylene	µg/L	1	[98%]	<1
o-xylene	µg/L	0.5	[98%]	<0.5
Total Xylenes	µg/L	1.5	-	<1.5
Total BTEX	µg/L	3	-	<3
Naphthalene	µg/L	0.5	-	<0.5
Dichlorodifluoromethane (CFC-12)	µg/L	5	-	-
Chloromethane	µg/L	5	-	-
Vinyl chloride (Chloroethene)	µg/L	0.3	-	-
Bromomethane	µg/L	10	-	-
Chloroethane	µg/L	5	-	-
Trichlorofluoromethane	µg/L	1	-	-
Acetone (2-propanone)	µg/L	10	-	-
Iodomethane	µg/L	5	-	-
1,1-dichloroethene	µg/L	0.5	-	-
Acrylonitrile	µg/L	0.5	-	-
Dichloromethane (Methylene chloride)	µg/L	5	-	-
Allyl chloride	µg/L	2	-	-
Carbon disulfide	µg/L	2	-	-
trans-1,2-dichloroethene	µg/L	0.5	-	-
MtBE (Methyl-tert-butyl ether)	µg/L	2	-	-
1,1-dichloroethane	µg/L	0.5	-	-
Vinyl acetate	µg/L	10	-	-
MEK (2-butanone)	µg/L	10	-	-
cis-1,2-dichloroethene	µg/L	0.5	-	-
Bromochloromethane	µg/L	0.5	-	-
Chloroform (THM)	µg/L	0.5	-	-
2,2-dichloropropane	µg/L	0.5	-	-
1,2-dichloroethane	µg/L	0.5	-	-
1,1,1-trichloroethane	µg/L	0.5	-	-
1,1-dichloropropene	µg/L	0.5	-	-
Carbon tetrachloride	µg/L	0.5	-	-
Dibromomethane	µg/L	0.5	-	-
1,2-dichloropropane	µg/L	0.5	-	-
Trichloroethene (Trichloroethylene,TCE)	µg/L	0.5	-	-
2-nitropropane	µg/L	100	-	-
Bromodichloromethane (THM)	µg/L	0.5	-	-
MIBK (4-methyl-2-pentanone)	µg/L	5	-	-
cis-1,3-dichloropropene	µg/L	0.5	-	-
trans-1,3-dichloropropene	µg/L	0.5	-	-
1,1,2-trichloroethane	µg/L	0.5	-	-
1,3-dichloropropane	µg/L	0.5	-	-
Dibromochloromethane (THM)	µg/L	0.5	-	-
2-hexanone (MBK)	µg/L	5	-	-
1,2-dibromoethane (EDB)	µg/L	0.5	-	-
Tetrachloroethene (Perchloroethylene,PCE)	µg/L	0.5	-	-
1,1,1,2-tetrachloroethane	µg/L	0.5	-	-
Chlorobenzene	µg/L	0.5	-	-
Bromoform (THM)	µg/L	0.5	-	-
cis-1,4-dichloro-2-butene	µg/L	1	-	-
Styrene (Vinyl benzene)	µg/L	0.5	-	-
1,1,2,2-tetrachloroethane	µg/L	0.5	-	-
1,2,3-trichloropropane	µg/L	0.5	-	-
trans-1,4-dichloro-2-butene	µg/L	1	-	-

VOCs in Water [AN433] Tested: 7/5/2018 (continued)

PARAMETER	UOM	LOR	GWTS1 WATER - 2/5/2018 SE178657.006	GWTB1 WATER - 2/5/2018 SE178657.007
Isopropylbenzene (Cumene)	µg/L	0.5	-	-
Bromobenzene	µg/L	0.5	-	-
n-propylbenzene	µg/L	0.5	-	-
2-chlorotoluene	µg/L	0.5	-	-
4-chlorotoluene	µg/L	0.5	-	-
1,3,5-trimethylbenzene	µg/L	0.5	-	-
tert-butylbenzene	µg/L	0.5	-	-
1,2,4-trimethylbenzene	µg/L	0.5	-	-
sec-butylbenzene	µg/L	0.5	-	-
1,3-dichlorobenzene	µg/L	0.5	-	-
1,4-dichlorobenzene	µg/L	0.3	-	-
p-isopropyltoluene	µg/L	0.5	-	-
1,2-dichlorobenzene	µg/L	0.5	-	-
n-butylbenzene	µg/L	0.5	-	-
1,2-dibromo-3-chloropropane	µg/L	0.5	-	-
1,2,4-trichlorobenzene	µg/L	0.5	-	-
Hexachlorobutadiene	µg/L	0.5	-	-
1,2,3-trichlorobenzene	µg/L	0.5	-	-
Total VOC	µg/L	10	-	-

Volatile Petroleum Hydrocarbons in Water [AN433] Tested: 7/5/2018

			BH1M	BH2M	BH8M	GWQD1	GWQR1
			WATER	WATER	WATER	WATER	WATER
			-	-	-	-	-
			2/5/2018	2/5/2018	2/5/2018	2/5/2018	2/5/2018
PARAMETER	UOM	LOR	SE178657.001	SE178657.002	SE178657.003	SE178657.004	SE178657.005
TRH C6-C9	µg/L	40	<40	<40	<40	<40	<40
Benzene (F0)	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TRH C6-C10	µg/L	50	<50	<50	<50	<50	<50
TRH C6-C10 minus BTEX (F1)	µg/L	50	<50	<50	<50	<50	<50

TRH (Total Recoverable Hydrocarbons) in Water [AN403] Tested: 7/5/2018

PARAMETER	UOM	LOR	BH1M WATER - 2/5/2018 SE178657.001	BH2M WATER - 2/5/2018 SE178657.002	BH8M WATER - 2/5/2018 SE178657.003	GWQD1 WATER - 2/5/2018 SE178657.004	GWQR1 WATER - 2/5/2018 SE178657.005
TRH C10-C14	μg/L	50	<50	<50	<50	<50	<50
TRH C15-C28	μg/L	200	<200	<200	<200	<200	<200
TRH C29-C36	μg/L	200	<200	<200	<200	<200	<200
TRH C37-C40	μg/L	200	<200	<200	<200	<200	<200
TRH >C10-C16	μg/L	60	<60	<60	<60	<60	<60
TRH >C16-C34 (F3)	μg/L	500	<500	<500	<500	<500	<500
TRH >C34-C40 (F4)	μg/L	500	<500	<500	<500	<500	<500
TRH C10-C36	μg/L	450	<450	<450	<450	<450	<450
TRH C10-C40	μg/L	650	<650	<650	<650	<650	<650
TRH >C10-C16 - Naphthalene (F2)	μg/L	60	<60	<60	<60	<60	<60

PAH (Polynuclear Aromatic Hydrocarbons) in Water [AN420] Tested: 7/5/2018

			BH1M	BH2M	BH8M
			WATER	WATER	WATER
			-	-	-
			2/5/2018	2/5/2018	2/5/2018
PARAMETER	UOM	LOR	SE178657.001	SE178657.002	SE178657.003
Naphthalene	µg/L	0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	µg/L	0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	µg/L	0.1	<0.1	<0.1	<0.1
Acenaphthylene	µg/L	0.1	<0.1	<0.1	<0.1
Acenaphthene	µg/L	0.1	<0.1	<0.1	<0.1
Fluorene	µg/L	0.1	<0.1	<0.1	<0.1
Phenanthrene	µg/L	0.1	<0.1	<0.1	<0.1
Anthracene	µg/L	0.1	<0.1	<0.1	<0.1
Fluoranthene	µg/L	0.1	<0.1	<0.1	<0.1
Pyrene	µg/L	0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	µg/L	0.1	<0.1	<0.1	<0.1
Chrysene	µg/L	0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	µg/L	0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	µg/L	0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	µg/L	0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	µg/L	0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	µg/L	0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	µg/L	0.1	<0.1	<0.1	<0.1
Total PAH (18)	µg/L	1	<1	<1	<1

Total Phenolics in Water [AN289] Tested: 7/5/2018

PARAMETER	UOM	LOR	BH1M WATER - 2/5/2018 SE178657.001	BH2M WATER - 2/5/2018 SE178657.002	BH8M WATER - 2/5/2018 SE178657.003
Total Phenols	mg/L	0.01	<0.01	<0.01	<0.01

Metals in Water (Dissolved) by ICPOES [AN320] Tested: 8/5/2018

PARAMETER	UOM	LOR	BH1M WATER - 2/5/2018 SE178657.001	BH2M WATER - 2/5/2018 SE178657.002	BH8M WATER - 2/5/2018 SE178657.003
Total Hardness by Calculation	mg CaCO3/L	5	2600	1700	2000

Trace Metals (Dissolved) in Water by ICPMS [AN318] Tested: 8/5/2018

PARAMETER	UOM	LOR	BH1M WATER - 2/5/2018 SE178657.001	BH2M WATER - 2/5/2018 SE178657.002	BH8M WATER - 2/5/2018 SE178657.003	GWQD1 WATER - 2/5/2018 SE178657.004	GWQR1 WATER - 2/5/2018 SE178657.005
Arsenic, As	µg/L	1	<1	3	1	3	<1
Cadmium, Cd	µg/L	0.1	0.2	0.4	0.2	0.3	<0.1
Chromium, Cr	µg/L	1	4	110	27	110	<1
Copper, Cu	µg/L	1	36	52	45	15	<1
Lead, Pb	µg/L	1	3	4	4	<1	<1
Nickel, Ni	µg/L	1	15	3	11	2	<1
Zinc, Zn	µg/L	5	86	59	180	<5	<5
Aluminium, Al	µg/L	5	14	92	39	89	<5

Mercury (dissolved) in Water [AN311(Perth)/AN312] Tested: 9/5/2018

PARAMETER	UOM	LOR	BH1M WATER - 2/5/2018 SE178657.001	BH2M WATER - 2/5/2018 SE178657.002	BH8M WATER - 2/5/2018 SE178657.003	GWQD1 WATER - 2/5/2018 SE178657.004	GWQR1 WATER - 2/5/2018 SE178657.005
Mercury	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

METHOD	METHODOLOGY SUMMARY
AN020	Unpreserved water sample is filtered through a 0.45µm membrane filter and acidified with nitric acid similar to APHA3030B.
AN289	Analysis of Total Phenols in Soil Sediment and Water: Steam distillable phenols react with 4-aminoantipyrine at pH 7.9±0.1 in the presence of potassium ferricyanide to form a coloured antipyrine dye analysed by Discrete Analyser. Reference APHA 5530 B/D.
AN311(Perth)/AN312	Mercury by Cold Vapour AAS in Waters: Mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500.
AN318	Determination of elements at trace level in waters by ICP-MS technique, in accordance with USEPA 6020A.
AN320	Metals by ICP-OES: Samples are preserved with 10% nitric acid for a wide range of metals and some non-metals. This solution is measured by Inductively Coupled Plasma. Solutions are aspirated into an argon plasma at 8000-10000K and emit characteristic energy or light as a result of electron transitions through unique energy levels. The emitted light is focused onto a diffraction grating where it is separated into components .
AN320	Photomultipliers or CCDs are used to measure the light intensity at specific wavelengths. This intensity is directly proportional to concentration. Corrections are required to compensate for spectral overlap between elements . Reference APHA 3120 B.
AN403	Total Recoverable Hydrocarbons: Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C6-C9, C10-C14, C15-C28 and C29-C36 and in recognition of the NEPM 1999 (2013), >C10-C16 (F2), >C16-C34 (F3) and >C34-C40 (F4). Where F2 is corrected for Naphthalene, the VOC data for Naphthalene is used.
AN403	Additionally, the volatile C6-C9/C6-C10 fractions may be determined by a purge and trap technique and GC/MS because of the potential for volatiles loss. Total Recoveerable Hydrocarbons - Silica (TRH-Silica) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents.
AN403	The GC/FID method is not well suited to the analysis of refined high boiling point materials (ie lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol if care to control volatility is taken. This method will detect naturally occurring hydrocarbons, lipids, animal fats, phenols and PAHs if they are present at sufficient levels, dependent on the use of specific cleanup/fractionation techniques. Reference USEPA 3510B, 8015B.
AN420	(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN433	VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC`s are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.

FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
**	Indicative data, theoretical holding time exceeded.	NVL	Not validated.	LOR	Limit of Reporting.
		IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		

Samples analysed as received.
Solid samples expressed on a dry weight basis.

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calculated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the " Total" LOR will be the sum of those two LORs.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.
Note that in terms of units of radioactivity:

a. 1 Bq is equivalent to 27 pCi
b. 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here : http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 190116

Client Details

Client	EI Australia
Attention	Lab Email
Address	Suite 6.01, 55 Miller Street, Pyrmont, NSW, 2009

Sample Details

Your Reference	**E23796, Liverpool**
Number of Samples	1 Soil
Date samples received	23/04/2018
Date completed instructions received	23/04/2018

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	01/05/2018
Date of Issue	30/04/2018

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Results Approved By
Dragana Tomas, Senior Chemist
Long Pham, Team Leader, Metals
Steven Luong, Senior Chemist

Authorised By

Jacinta Hurst, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil		
Our Reference		190116-1
Your Reference	UNITS	QT1
Date Sampled		20/04/2018
Type of sample		Soil
Date extracted	-	24/04/2018
Date analysed	-	26/04/2018
TRH C_6 - C_9	mg/kg	<25
TRH C_6 - C_{10}	mg/kg	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25
Benzene	mg/kg	<0.2
Toluene	mg/kg	<0.5
Ethylbenzene	mg/kg	<1
m+p-xylene	mg/kg	<2
o-Xylene	mg/kg	<1
naphthalene	mg/kg	<1
Total +ve Xylenes	mg/kg	<1
Surrogate aaa-Trifluorotoluene	%	71

svTRH (C10-C40) in Soil		
Our Reference		190116-1
Your Reference	UNITS	QT1
Date Sampled		20/04/2018
Type of sample		Soil
Date extracted	-	24/04/2018
Date analysed	-	25/04/2018
TRH C_{10} - C_{14}	mg/kg	<50
TRH C_{15} - C_{28}	mg/kg	<100
TRH C_{29} - C_{36}	mg/kg	<100
TRH >C_{10} -C_{16}	mg/kg	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50
TRH >C_{16} -C_{34}	mg/kg	<100
TRH >C_{34} -C_{40}	mg/kg	<100
Total +ve TRH (>C10-C40)	mg/kg	<50
Surrogate o-Terphenyl	%	79

Acid Extractable metals in soil		
Our Reference		190116-1
Your Reference	UNITS	QT1
Date Sampled		20/04/2018
Type of sample		Soil
Date prepared	-	24/04/2018
Date analysed	-	24/04/2018
Arsenic	mg/kg	6
Cadmium	mg/kg	<0.4
Chromium	mg/kg	20
Copper	mg/kg	20
Lead	mg/kg	100
Mercury	mg/kg	<0.1
Nickel	mg/kg	22
Zinc	mg/kg	130

Moisture		
Our Reference		190116-1
Your Reference	UNITS	QT1
Date Sampled		20/04/2018
Type of sample		Soil
Date prepared	-	24/04/2018
Date analysed	-	26/04/2018
Moisture	%	17

Method ID	Methodology Summary
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	[NT]
Date extracted	-			24/04/2018	[NT]	[NT]	[NT]	[NT]	24/04/2018	[NT]
Date analysed	-			26/04/2018	[NT]	[NT]	[NT]	[NT]	26/04/2018	[NT]
TRH C_6 - C_9	mg/kg	25	Org-016	<25	[NT]	[NT]	[NT]	[NT]	103	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-016	<25	[NT]	[NT]	[NT]	[NT]	103	[NT]
Benzene	mg/kg	0.2	Org-016	<0.2	[NT]	[NT]	[NT]	[NT]	100	[NT]
Toluene	mg/kg	0.5	Org-016	<0.5	[NT]	[NT]	[NT]	[NT]	100	[NT]
Ethylbenzene	mg/kg	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	112	[NT]
m+p-xylene	mg/kg	2	Org-016	<2	[NT]	[NT]	[NT]	[NT]	101	[NT]
o-Xylene	mg/kg	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	103	[NT]
naphthalene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	75	[NT]	[NT]	[NT]	[NT]	70	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	[NT]
Date extracted	-			24/04/2018	[NT]	[NT]	[NT]	[NT]	24/04/2018	[NT]
Date analysed	-			25/04/2018	[NT]	[NT]	[NT]	[NT]	25/04/2018	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	109	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	87	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	92	[NT]
TRH >C_{10}-C_{16}	mg/kg	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	109	[NT]
TRH >C_{16}-C_{34}	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	87	[NT]
TRH >C_{34}-C_{40}	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	92	[NT]
Surrogate o-Terphenyl	%		Org-003	82	[NT]	[NT]	[NT]	[NT]	94	[NT]

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	[NT]
Date prepared	-			24/04/2018	[NT]	[NT]	[NT]	[NT]	24/04/2018	[NT]
Date analysed	-			24/04/2018	[NT]	[NT]	[NT]	[NT]	24/04/2018	[NT]
Arsenic	mg/kg	4	Metals-020	<4	[NT]	[NT]	[NT]	[NT]	111	[NT]
Cadmium	mg/kg	0.4	Metals-020	<0.4	[NT]	[NT]	[NT]	[NT]	103	[NT]
Chromium	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	110	[NT]
Copper	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	111	[NT]
Lead	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	104	[NT]
Mercury	mg/kg	0.1	Metals-021	<0.1	[NT]	[NT]	[NT]	[NT]	101	[NT]
Nickel	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	109	[NT]
Zinc	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	105	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 190745

Client Details	
Client	EI Australia
Attention	Lab Email
Address	Suite 6.01, 55 Miller Street, Pyrmont, NSW, 2009

Sample Details	
Your Reference	E23796, Liverpool
Number of Samples	1 water
Date samples received	03/05/2018
Date completed instructions received	03/05/2018

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details	
Date results requested by	10/05/2018
Date of Issue	09/05/2018

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Accredited for compliance with ISO/IEC 17025 - Testing. **Tests not covered by NATA are denoted with ***

Results Approved By
Jaimie Loa-Kum-Cheung, Senior Chemist
Jeremy Faircloth, Organics Supervisor

Authorised By

Jacinta Hurst, Laboratory Manager

vTRH(C6-C10)/BTEXN in Water		
Our Reference	UNITS	190745-1
Your Reference		GWQT1
Date Sampled		02/05/2018
Type of sample		water
Date extracted	-	04/05/2018
Date analysed	-	04/05/2018
TRH C_6 - C_9	µg/L	<10
TRH C_6 - C_{10}	µg/L	<10
TRH C_6 - C_{10} less BTEX (F1)	µg/L	<10
Benzene	µg/L	<1
Toluene	µg/L	<1
Ethylbenzene	µg/L	2
m+p-xylene	µg/L	<2
o-xylene	µg/L	<1
Naphthalene	µg/L	<1
Surrogate Dibromofluoromethane	%	105
Surrogate toluene-d8	%	97
Surrogate 4-BFB	%	90

svTRH (C10-C40) in Water		
Our Reference		190745-1
Your Reference	UNITS	GWQT1
Date Sampled		02/05/2018
Type of sample		water
Date extracted	-	04/05/2018
Date analysed	-	04/05/2018
TRH C_{10} - C_{14}	µg/L	83
TRH C_{15} - C_{28}	µg/L	<100
TRH C_{29} - C_{36}	µg/L	<100
TRH >C_{10} - C_{16}	µg/L	62
TRH >C_{10} - C_{16} less Naphthalene (F2)	µg/L	62
TRH >C_{16} - C_{34}	µg/L	<100
TRH >C_{34} - C_{40}	µg/L	<100
Surrogate o-Terphenyl	%	86

HM in water - dissolved		
Our Reference		190745-1
Your Reference	UNITS	GWQT1
Date Sampled		02/05/2018
Type of sample		water
Date prepared	-	04/05/2018
Date analysed	-	04/05/2018
Aluminium-Dissolved	µg/L	100
Arsenic-Dissolved	µg/L	2
Cadmium-Dissolved	µg/L	<0.1
Chromium-Dissolved	µg/L	130
Copper-Dissolved	µg/L	18
Lead-Dissolved	µg/L	<1
Mercury-Dissolved	µg/L	<0.05
Nickel-Dissolved	µg/L	3
Zinc-Dissolved	µg/L	8

Method ID	Methodology Summary
Metals-021	Determination of Mercury by Cold Vapour AAS.
Metals-022	Determination of various metals by ICP-MS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-013	Water samples are analysed directly by purge and trap GC-MS.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			04/05/2018	1	04/05/2018	04/05/2018		04/05/2018	[NT]
Date analysed	-			04/05/2018	1	04/05/2018	04/05/2018		04/05/2018	[NT]
TRH C_6 - C_9	µg/L	10	Org-016	<10	1	<10	<10	0	118	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-016	<10	1	<10	<10	0	118	[NT]
Benzene	µg/L	1	Org-016	<1	1	<1	<1	0	119	[NT]
Toluene	µg/L	1	Org-016	<1	1	<1	<1	0	120	[NT]
Ethylbenzene	µg/L	1	Org-016	<1	1	2	2	0	118	[NT]
m+p-xylene	µg/L	2	Org-016	<2	1	<2	<2	0	117	[NT]
o-xylene	µg/L	1	Org-016	<1	1	<1	<1	0	119	[NT]
Naphthalene	µg/L	1	Org-013	<1	1	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-016	102	1	105	104	1	102	[NT]
Surrogate toluene-d8	%		Org-016	97	1	97	99	2	101	[NT]
Surrogate 4-BFB	%		Org-016	88	1	90	90	0	97	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date extracted	-			04/05/2018	[NT]	[NT]	[NT]	[NT]	04/05/2018	[NT]
Date analysed	-			04/05/2018	[NT]	[NT]	[NT]	[NT]	04/05/2018	[NT]
TRH C_{10} - C_{14}	µg/L	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	127	[NT]
TRH C_{15} - C_{28}	µg/L	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	120	[NT]
TRH C_{29} - C_{36}	µg/L	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	107	[NT]
TRH >C_{10} - C_{16}	µg/L	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	127	[NT]
TRH >C_{16} - C_{34}	µg/L	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	120	[NT]
TRH >C_{34} - C_{40}	µg/L	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	107	[NT]
Surrogate o-Terphenyl	%		Org-003	69	[NT]	[NT]	[NT]	[NT]	107	[NT]

QUALITY CONTROL: HM in water - dissolved					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date prepared	-			04/05/2018	[NT]	[NT]	[NT]	[NT]	04/05/2018	[NT]
Date analysed	-			04/05/2018	[NT]	[NT]	[NT]	[NT]	04/05/2018	[NT]
Aluminium-Dissolved	µg/L	10	Metals-022	<10	[NT]	[NT]	[NT]	[NT]	95	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	101	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	[NT]	[NT]	[NT]	[NT]	102	[NT]
Chromium-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	97	[NT]
Copper-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	97	[NT]
Lead-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	102	[NT]
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	[NT]	[NT]	[NT]	[NT]	89	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	98	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	99	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

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Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
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LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
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Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

APPENDIX J
QA/QC Assessment

J1 QUALITY CONTROL PROGRAM

J1.1 INTRODUCTION

For the purpose of assessing the quality of data presented in this DSI, EI collected field QC samples for analysis. The primary laboratory, SGS Australia Pty Ltd (SGS) and secondary laboratory, Envirolab Services Pty Ltd (Envirolab) also prepared and analysed internal QC samples. Details of the field and laboratory QC samples, with the allowable data acceptance ranges are presented in **Table J-1**.

Table J-1 Sampling Data Quality Indicators

QA/QC Measures	Data Quality Indicators
Precision – A quantitative measure of the variability (or reproducibility) of data	Data precision would be assessed by reviewing the performance of blind field duplicate sample sets, through calculation of relative percentage differences (RPD). Data precision would be deemed acceptable if RPDs are found to be less than 30%. RPDs that exceed this range may be considered acceptable where: • Results are less than 10 times the limits of reporting (LOR); • Results are less than 20 times the LOR and the RPD is less than 50%; or • Heterogeneous materials or volatile compounds are encountered.
Accuracy – A quantitative measure of the closeness of reported data to the “true” value	Data accuracy would be assessed through the analysis of: • Method blanks, which are analysed for the analytes targeted in the primary samples; • Matrix spike and matrix spike duplicate sample sets; • Laboratory control samples; and • Calibration of instruments against known standards.
Representativeness – The confidence (expressed qualitatively) that data are representative of each medium present onsite	To ensure the data produced by the laboratory is representative of conditions encountered in the field, the laboratory would carry out the following: • Blank samples will be run in parallel with field samples to confirm there are no unacceptable instances of laboratory artefacts; • Review of relative percentage differences (RPD) values for field and laboratory duplicates to provide an indication that the samples are generally homogeneous, with no unacceptable instances of significant sample matrix heterogeneities; and • The appropriateness of collection methodologies, handling, storage and preservation techniques will be assessed to ensure/confirm there was minimal opportunity for sample interference or degradation (i.e. volatile loss during transport due to incorrect preservation / transport methods).
Completeness – A measure of the amount of useable data from a data collection activity	Analytical data sets acquired during the assessment will be evaluated as complete, upon confirmation that: • Standard operating procedures (SOPs) for sampling protocols were adhered to; and • Copies of all COC documentation are presented, reviewed and found to be properly completed. It can therefore be considered whether the proportion of “useable data” generated in the data collection activities is sufficient for the purposes of the land use assessment.

QA/QC Measures	Data Quality Indicators
Comparability – The confidence (expressed qualitatively) that data may be considered to be equivalent for each sampling and analytical event	Given that a reported data set can comprise several data sets from separate sampling episodes, issues of comparability between data sets are reduced through adherence to SOPs and regulator-endorsed or published guidelines and standards on each data gathering activity. In addition the data will be collected by experienced samplers and NATA-accredited laboratory methodologies will be employed in all laboratory testing programs.

J1.2 Calculation of Relative Percentage Difference (RPD)

The RPD values were calculated using the following equation:

$$RPD = \frac{|C_O - C_R|}{[(C_O + C_R)/2]} \times 100$$

Where:

C_O = Concentration obtained for the primary sample; and

C_R = Concentration obtained for the blind replicate or split duplicate sample.

J2 FIELD QA/QC DATA EVALUATION

The field quality assurance/quality control (QA/QC) soil and groundwater samples collected during the investigations were as follows:

- Blind field duplicates;
- Inter-laboratory duplicates;
- Trip blanks;
- Trip spikes; and
- Rinsate blanks.

Analytical results for tested soil and groundwater QA/QC samples, including calculated RPD values between primary and duplicate samples, are presented in **Table J-2** and **Table J-3**, respectively.

J2.1 Soil Investigation & Soil Validation

J2.1.1 Blind Field Duplicates

A blind field duplicates (BFD) was collected, including:

1) QD1 collected from the primary sample BH2M_0.2-0.3 on 20 April 2018.

The preparation of the BFD sample involved the collection of a bulk quantity of soil from the same sampling point without mixing, before dividing the material into identical sampling vessels. The duplicate sample was then presented blind to the primary laboratory (SGS) to avoid any potential analytical bias. The duplicate pair was analysed for TRH, BTEX and selected priority metals with the RPD values calculated found to be within the Data Acceptance Criteria (**Appendix J, Table J2**), with the exception of Lead, Mercury and Zinc with a calculated RPD values of 66.67%, 75.86%, and 58.82% respectively . EI consider this is due to the heterogeneous nature of fill material.

J2.1.2 Inter-Laboratory Duplicate

An inter-laboratory duplicates (ILDs) was collected, including:

1) QT-1 collected from the primary sample BH2M_0.2-0.3 on 20 April 2018;

The preparation of the ILD sample was identical to the BFD sample as described above and analysed for TRH, BTEX and selected heavy metals. The RPD values calculated for the ILD samples were found to be within the Data Acceptance Criteria (**Appendix J, Table J-2**), with the exception of Mercury with a calculated RPD values of 66.67. EI consider this is due to the heterogeneous nature of fill material.

J2.1.3 Rinsate Blank

One rinsate blank (QR1) sample was submitted to the primary laboratory for selected priority metals, TRH and BTEX analysis. The results for which were reported below laboratory LOR, with the exception of various metals; as all other tested contaminants were below LOR it was concluded that decontamination procedures performed during the field works had been effective.

J2.1.4 Trip Blank

One trip blank (TB1) sample was prepared and analysed by the primary laboratory for BTEX and Naphthalene. Analytical results for this sample were below the laboratory LOR, indicating that ideal sample transport and handling conditions were achieved.

J2.1.5 Trip Spike

One trip spike (TS1) sample was submitted to the primary laboratory for TRH and BTEX analysis, the results for which were reported within the RPD acceptance levels for trip spike recovery. It was therefore concluded that satisfactory sample transport and handling conditions were achieved.

J2.2 GROUNDWATER INVESTIGATION

J2.2.1 Blind Field Duplicates

One Blind Field Duplicates (BFD) was collected, including:

1) GWQD1 collected from the primary sample BH2M on 2 May 2018.

The preparation of BFD samples involved the decanting of the groundwater collected from the respective monitoring well into two separate groups of appropriately labelled sampling containers. Volumes were split equally between the groups of sampling bottles such that the sample contained in each individual bottle, contained a similar proportion of each water volume. Sample mixing did not occur prior to decanting, in order to preserve the concentrations of volatiles potentially present within the sample. The duplicate sample was then presented blind to the primary laboratory (SGS) to avoid any potential analytical bias. The BFD was analysed for TRHs, BTEX, selected heavy metals, PAHs and VOCs. The RPD values calculated for all the analytes tested were found to be within the DAC, with the exception of copper (RPD=110.45%), lead (RPD=120%), and zinc (RPD=168.75%), due to the low concentrations detected.

J2.2.2 Inter-Laboratory Duplicate

One inter laboratory duplicate (ILD) was collected, including:

2) GWQT1 collected from the primary sample BH2M on 2 May 2018.

The preparation of ILD sample was identical to GWQD1. The duplicate sample was analysed by the secondary laboratory Envirolab for TRHs, BTEX and selected priority metals. The RPD values calculated for all the analytes tested were found to be within the Data Acceptance Criteria (DAC), with the exception of Ethylbenzene (RPD=85.71%), Cadmium (RPD=120%), copper (RPD=97.14%), lead (RPD=120%), and zinc (RPD=152.24%), due to the low concentrations detected.

J2.2.3 Rinsate Blanks

An equipment rinsate sample was collected, including:

1) GWQR1 collected on 2 May 2018.

One rinsate blank sample GWQR1 was submitted to the primary laboratory for TRHs, BTEX and selected heavy metals, the results for which were reported below laboratory.

J2.4 ASSESSMENT OF FIELD QA/QC DATA

All samples were classified in the field with respect to any observable signs of contamination based on visual and odour assessment and observable characteristics, in regards to soil and groundwater. Furthermore, samples were placed immediately into laboratory supplied containers to reduce the loss of volatiles. Results of sampling indicated that the samples collected were representative of the conditions present at the time of sampling. EI conclude that the samples collected are representative of the soils present at the respective sampling locations.

All samples, including field QC samples, were transported to the primary and secondary laboratories under strict Chain-of-Custody conditions and appropriate copies of relevant documentation were included in the respective reports.

The overall completeness of documentation produced under the field program of the subject assessment was considered to be adequate for the purposes of drawing valid conclusions regarding the environmental condition of the site.

Based on the results of the field QA/QC data EI considered the field QA/QC programme carried out during the data gap closure investigations to be appropriate and the results to be acceptable.

J3 LABORATORY QA/QC

J3.1 LABORATORY ACCREDITATION

To undertake all analytical testing, EI commissioned SGS as the primary laboratory and Envirolab as the secondary laboratory. SGS and Envirolab, both established analytical laboratories which operate in accordance with the guidelines set out in ISO/IEC Guide 25 “General requirements for the competence of calibration and testing laboratories”, conducted all respective analyses using National Association Testing Authorities (NATA)-registered procedures.

In relation to contingencies, should the pre-determined DQOs not be achieved, in accordance with each laboratory’s QC policy, respective tests are accordingly repeated. Should the results again fall outside the DQOs, then sample heterogeneity may be assumed and written comment will be provided to this effect on the final laboratory certificate.

J3.2 SAMPLE HOLDING TIMES

All sample holding times were generally within standard environmental protocols as tabulated in **Appendix H, Tables QC1 and QC2**.

J3.3 TEST METHODS AND PRACTICAL QUANTITATION LIMITS (PQLS)

Practical Quantitation Limits for all tested parameters during the assessment of soils and groundwater are presented in **AppendixJ**, **Tables J-2** and **J-3a**.

J3.4 METHOD BLANKS

Concentrations of all parameters in method blanks during the assessment were below the laboratory PQLs and were therefore within the DAC.

J3.5 LABORATORY DUPLICATE SAMPLES

The Laboratory Control Samples (LCS) for the analysis batches showed calculated RPDs that were within acceptable ranges and conformed to the DAC, with the exception of some metals in soil results for the majority of tested laboratory duplicates. This is believed to reflect fill soil sample heterogeneity and does not necessarily indicate that analytical results are invalid.

J3.6 LABORATORY CONTROL SAMPLES

The Laboratory Control Samples for the analysis batches were within acceptable ranges and conformed to the DAC.

J3.7 MATRIX SPIKES

All matrix spikes for the respective sample batches were within acceptable ranges and conformed to the DAC.

J3.8 SURROGATE

Recovery results for all surrogate samples conformed to the DAC.

J3.9 CONCLUDING REMARK

Based on the laboratory QA/QC results EI considers that although a small number of discrepancies were identified, the data generally confirms that the analytical results for the various phases of laboratory testing were valid and useable for interpretation purposes

Table J3 - Soil QAQC results

Sample identification	Description	TRH				BTEX				Heavy Metals							
		F1*	F2**	F3 ($>C_{16}$ - C_{34})	F4 ($>C_{34}$ - C_{40})	Benzene	Toluene	Ethylbenzene	Xylene (total)	Arsenic	Cadmium	Chromium (Total)	Copper	Lead	Mercury	Nickel	Zinc
Intra-laboratory Duplicate - Soil Investigation																	
BH2M 0.2-0.3	Fill	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	5	<0.3	19	21	130	0.2	15	120
QD1	BFD of BH2M 0.2-0.3	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	5	<0.3	18	25	260	0.09	11	220
	RPD	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*5.41*	*17.39*	66.67	75.86	*30.77*	58.82
Inter-laboratory Duplicate - Soil Investigation																	
BH2M 0.2-0.3	Fill	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	5	<0.3	19	21	130	0.2	15	120
QT1	ILD of BH2M 0.2-0.3	<25	<50	<100	<100	<0.2	<0.5	<1	<1	6	<0.4	20	20	100	<0.1	22	130
	RPD	*0.00*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*18.18*	*NA*	*5.13*	*4.88*	*26.09*	66.67	*37.84*	*8.00*
Trip Blanks																	
TB1	Soil	NA	NA	NA	NA	<0.1	<0.1	<0.1	<0.3	NA	NA	NA	NA	NA	NA	NA	NA
Trip Spikes																	
TS1	Soil	NA	NA	NA	NA	[79%]	[79%]	[76%]	NA	NA	NA	NA	NA	NA	NA	NA	NA
Rinsate Blanks																	
QR1	Water	<50	<60	<500	<500	<0.5	<0.5	<0.5	<1.5	<1	<0.1	2	<1	<1	<0.1	<1	<5

NOTE: All results are reported in mg/kg (soil) or µg/L (water)

66.67	RPD calculated by halving detection limit exceeds 30-50% range referenced from AS4482.1 (2005)
52.87	RPD exceeds 30-50% range referenced from AS4482.1 (2005)

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Table J3 - Groundwater QAQC results tables

Sample identification	Description	TRH				BTEX				Heavy Metals							
		F1*	F2**	F3 (>C_{16} - C_{34})	F4 (>C_{34} - C_{40})	Benzene	Toluene	Ethylbenzene	Xylene (total)	Arsenic	Cadmium	Chromium (Total)	Copper	Lead	Mercury	Nickel	Zinc
Intra-laboratory Duplicate - Groundwater Investigation																	
BH2M	Groundwater	<50	<60	<500	<500	<0.5	<0.5	0.8	<1.5	3	0.4	110	52	4	<0.1	3	59
GWQD1	BFD of BH2M	<50	<60	<500	<500	<0.5	<0.5	0.6	<1.5	3	0.3	110	15	<1	<0.1	2	<5
RPD		*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*28.57*	*0.00*	*0.00*	*28.57*	*0.00*	110.45	120.00	*0.00*	*40.00*	168.75
Inter-laboratory Duplicate - Groundwater Investigation																	
BH2M	Groundwater	<50	<60	<500	<500	<0.5	<0.5	0.8	<1.5	3	0.4	110	52	4	<0.1	3	59
GWQT1	ILD of BH2M	<10	62	<100	<100	<1	<1	2	<2	2	<0.1	130	18	<1	<0.05	3	8
RPD		*NA*	*3.28*	*NA*	*NA*	*NA*	*NA*	85.71	*NA*	*40.00*	120.00	*16.67*	97.14	120.00	*NA*	*0.00*	152.24
Rinsate Blanks																	
GWQR1	Water	<50	<60	<500	<500	<0.5	<0.5	<0.5	<1.5	<1	<0.1	<1	<1	<1	<0.01	<1	<5

NOTE: All results are reported in mg/kg (soil) or µg/L (water)

66.67	RPD calculated by halving detection limit exceeds 30-50% range referenced from AS4482.1 (2005)
66.67	RPD exceeds 30-50% range referenced from AS4482.1 (2005)

eiaustralia

Contamination | Remediation | Geotechnical

APPENDIX K

Laboratory QA/QC Policies and DQOs

STATEMENT OF QA/QC PERFORMANCE

SE178319 R0

CLIENT DETAILS

Contact	Sharon Li	Manager	Huong Crawford
Client	EI AUSTRALIA	Laboratory	SGS Alexandria Environmental
Address	SUITE 6.01 55 MILLER STREET PYRMONT NSW 2009	Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	61 2 95160722	Telephone	+61 2 8594 0400
Facsimile	(Not specified)	Facsimile	+61 2 8594 0499
Email	sharon.li@eiaustralia.com.au	Email	au.environmental.sydney@sgs.com

LABORATORY DETAILS

Project	**E23796 - 26 Elizabeth St, Liverpool NSW**	SGS Reference	**SE178319 R0**
Order Number	**E23796**	Date Received	23 Apr 2018
Samples	30	Date Reported	01 May 2018

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document and was supplied by the Client.
This QA/QC Statement must be read in conjunction with the referenced Analytical Report.
The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met with the exception of the following:

Duplicate	Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES	2 items

SAMPLE SUMMARY

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS “Field Sampling Guide for Containers and Holding Time” (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Fibre Identification in soil

Method: ME-(AU)-[ENV]AN602

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M 0.2-0.3	SE178319.001	LB146705	20 Apr 2018	23 Apr 2018	20 Apr 2019	30 Apr 2018	20 Apr 2019	01 May 2018
BH2M 0.2-0.3	SE178319.008	LB146705	20 Apr 2018	23 Apr 2018	20 Apr 2019	30 Apr 2018	20 Apr 2019	01 May 2018
BH3 0.2-0.3	SE178319.016	LB146705	20 Apr 2018	23 Apr 2018	20 Apr 2019	30 Apr 2018	20 Apr 2019	01 May 2018
BH4 0.2-0.3	SE178319.017	LB146705	20 Apr 2018	23 Apr 2018	20 Apr 2019	30 Apr 2018	20 Apr 2019	01 May 2018
BH5 0.3-0.4	SE178319.018	LB146705	20 Apr 2018	23 Apr 2018	20 Apr 2019	30 Apr 2018	20 Apr 2019	01 May 2018
BH6 0.3-0.4	SE178319.019	LB146705	20 Apr 2018	23 Apr 2018	20 Apr 2019	30 Apr 2018	20 Apr 2019	01 May 2018
BH7 0.2-0.3	SE178319.021	LB146705	20 Apr 2018	23 Apr 2018	20 Apr 2019	30 Apr 2018	20 Apr 2019	01 May 2018
BH8M 0.5-0.6	SE178319.022	LB146705	20 Apr 2018	23 Apr 2018	20 Apr 2019	30 Apr 2018	20 Apr 2019	01 May 2018
BH9 0.2-0.3	SE178319.025	LB146705	20 Apr 2018	23 Apr 2018	20 Apr 2019	30 Apr 2018	20 Apr 2019	01 May 2018

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QR1	SE178319.028	LB146397	20 Apr 2018	23 Apr 2018	18 May 2018	26 Apr 2018	18 May 2018	26 Apr 2018

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M 0.2-0.3	SE178319.001	LB146571	20 Apr 2018	23 Apr 2018	18 May 2018	27 Apr 2018	18 May 2018	01 May 2018
BH1M 0.6-0.7	SE178319.002	LB146571	20 Apr 2018	23 Apr 2018	18 May 2018	27 Apr 2018	18 May 2018	01 May 2018
BH2M 0.2-0.3	SE178319.008	LB146571	20 Apr 2018	23 Apr 2018	18 May 2018	27 Apr 2018	18 May 2018	01 May 2018
BH2M 0.5-0.6	SE178319.009	LB146571	20 Apr 2018	23 Apr 2018	18 May 2018	27 Apr 2018	18 May 2018	01 May 2018
BH3 0.2-0.3	SE178319.016	LB146571	20 Apr 2018	23 Apr 2018	18 May 2018	27 Apr 2018	18 May 2018	01 May 2018
BH4 0.2-0.3	SE178319.017	LB146571	20 Apr 2018	23 Apr 2018	18 May 2018	27 Apr 2018	18 May 2018	01 May 2018
BH5 0.3-0.4	SE178319.018	LB146571	20 Apr 2018	23 Apr 2018	18 May 2018	27 Apr 2018	18 May 2018	01 May 2018
BH6 0.3-0.4	SE178319.019	LB146571	20 Apr 2018	23 Apr 2018	18 May 2018	27 Apr 2018	18 May 2018	01 May 2018
BH6 0.6-0.7	SE178319.020	LB146571	20 Apr 2018	23 Apr 2018	18 May 2018	27 Apr 2018	18 May 2018	01 May 2018
BH7 0.2-0.3	SE178319.021	LB146571	20 Apr 2018	23 Apr 2018	18 May 2018	27 Apr 2018	18 May 2018	01 May 2018
BH8M 0.5-0.6	SE178319.022	LB146571	20 Apr 2018	23 Apr 2018	18 May 2018	27 Apr 2018	18 May 2018	01 May 2018
BH9 0.2-0.3	SE178319.025	LB146571	20 Apr 2018	23 Apr 2018	18 May 2018	27 Apr 2018	18 May 2018	01 May 2018
BH9 0.9-1.0	SE178319.026	LB146571	20 Apr 2018	23 Apr 2018	18 May 2018	27 Apr 2018	18 May 2018	01 May 2018
QD1	SE178319.027	LB146571	20 Apr 2018	23 Apr 2018	18 May 2018	27 Apr 2018	18 May 2018	01 May 2018

Moisture Content

Method: ME-(AU)-[ENV]AN002

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M 0.2-0.3	SE178319.001	LB146659	20 Apr 2018	23 Apr 2018	04 May 2018	30 Apr 2018	05 May 2018	01 May 2018
BH1M 0.6-0.7	SE178319.002	LB146659	20 Apr 2018	23 Apr 2018	04 May 2018	30 Apr 2018	05 May 2018	01 May 2018
BH2M 0.2-0.3	SE178319.008	LB146659	20 Apr 2018	23 Apr 2018	04 May 2018	30 Apr 2018	05 May 2018	01 May 2018
BH2M 0.5-0.6	SE178319.009	LB146659	20 Apr 2018	23 Apr 2018	04 May 2018	30 Apr 2018	05 May 2018	01 May 2018
BH3 0.2-0.3	SE178319.016	LB146659	20 Apr 2018	23 Apr 2018	04 May 2018	30 Apr 2018	05 May 2018	01 May 2018
BH4 0.2-0.3	SE178319.017	LB146659	20 Apr 2018	23 Apr 2018	04 May 2018	30 Apr 2018	05 May 2018	01 May 2018
BH5 0.3-0.4	SE178319.018	LB146659	20 Apr 2018	23 Apr 2018	04 May 2018	30 Apr 2018	05 May 2018	01 May 2018
BH6 0.3-0.4	SE178319.019	LB146659	20 Apr 2018	23 Apr 2018	04 May 2018	30 Apr 2018	05 May 2018	01 May 2018
BH6 0.6-0.7	SE178319.020	LB146659	20 Apr 2018	23 Apr 2018	04 May 2018	30 Apr 2018	05 May 2018	01 May 2018
BH7 0.2-0.3	SE178319.021	LB146659	20 Apr 2018	23 Apr 2018	04 May 2018	30 Apr 2018	05 May 2018	01 May 2018
BH8M 0.5-0.6	SE178319.022	LB146659	20 Apr 2018	23 Apr 2018	04 May 2018	30 Apr 2018	05 May 2018	01 May 2018
BH9 0.2-0.3	SE178319.025	LB146659	20 Apr 2018	23 Apr 2018	04 May 2018	30 Apr 2018	05 May 2018	01 May 2018
BH9 0.9-1.0	SE178319.026	LB146659	20 Apr 2018	23 Apr 2018	04 May 2018	30 Apr 2018	05 May 2018	01 May 2018
QD1	SE178319.027	LB146659	20 Apr 2018	23 Apr 2018	04 May 2018	30 Apr 2018	05 May 2018	01 May 2018
TB1	SE178319.030	LB146659	20 Apr 2018	23 Apr 2018	04 May 2018	30 Apr 2018	05 May 2018	01 May 2018

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M 0.2-0.3	SE178319.001	LB146373	20 Apr 2018	23 Apr 2018	04 May 2018	24 Apr 2018	03 Jun 2018	30 Apr 2018
BH1M 0.6-0.7	SE178319.002	LB146373	20 Apr 2018	23 Apr 2018	04 May 2018	24 Apr 2018	03 Jun 2018	01 May 2018
BH2M 0.2-0.3	SE178319.008	LB146373	20 Apr 2018	23 Apr 2018	04 May 2018	24 Apr 2018	03 Jun 2018	30 Apr 2018
BH2M 0.5-0.6	SE178319.009	LB146373	20 Apr 2018	23 Apr 2018	04 May 2018	24 Apr 2018	03 Jun 2018	01 May 2018
BH3 0.2-0.3	SE178319.016	LB146373	20 Apr 2018	23 Apr 2018	04 May 2018	24 Apr 2018	03 Jun 2018	30 Apr 2018
BH4 0.2-0.3	SE178319.017	LB146373	20 Apr 2018	23 Apr 2018	04 May 2018	24 Apr 2018	03 Jun 2018	30 Apr 2018
BH5 0.3-0.4	SE178319.018	LB146373	20 Apr 2018	23 Apr 2018	04 May 2018	24 Apr 2018	03 Jun 2018	30 Apr 2018
BH6 0.3-0.4	SE178319.019	LB146373	20 Apr 2018	23 Apr 2018	04 May 2018	24 Apr 2018	03 Jun 2018	30 Apr 2018
BH6 0.6-0.7	SE178319.020	LB146373	20 Apr 2018	23 Apr 2018	04 May 2018	24 Apr 2018	03 Jun 2018	01 May 2018
BH7 0.2-0.3	SE178319.021	LB146373	20 Apr 2018	23 Apr 2018	04 May 2018	24 Apr 2018	03 Jun 2018	30 Apr 2018

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

OC Pesticides in Soil (continued) — Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH8M 0.5-0.6	SE178319.022	LB146373	20 Apr 2018	23 Apr 2018	04 May 2018	24 Apr 2018	03 Jun 2018	30 Apr 2018
BH9 0.2-0.3	SE178319.025	LB146373	20 Apr 2018	23 Apr 2018	04 May 2018	24 Apr 2018	03 Jun 2018	30 Apr 2018
BH9 0.9-1.0	SE178319.026	LB146373	20 Apr 2018	23 Apr 2018	04 May 2018	24 Apr 2018	03 Jun 2018	01 May 2018
QD1	SE178319.027	LB146373	20 Apr 2018	23 Apr 2018	04 May 2018	24 Apr 2018	03 Jun 2018	01 May 2018

OP Pesticides in Soil — Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M 0.2-0.3	SE178319.001	LB146373	20 Apr 2018	23 Apr 2018	04 May 2018	24 Apr 2018	03 Jun 2018	30 Apr 2018
BH1M 0.6-0.7	SE178319.002	LB146373	20 Apr 2018	23 Apr 2018	04 May 2018	24 Apr 2018	03 Jun 2018	01 May 2018
BH2M 0.2-0.3	SE178319.008	LB146373	20 Apr 2018	23 Apr 2018	04 May 2018	24 Apr 2018	03 Jun 2018	30 Apr 2018
BH2M 0.5-0.6	SE178319.009	LB146373	20 Apr 2018	23 Apr 2018	04 May 2018	24 Apr 2018	03 Jun 2018	01 May 2018
BH3 0.2-0.3	SE178319.016	LB146373	20 Apr 2018	23 Apr 2018	04 May 2018	24 Apr 2018	03 Jun 2018	30 Apr 2018
BH4 0.2-0.3	SE178319.017	LB146373	20 Apr 2018	23 Apr 2018	04 May 2018	24 Apr 2018	03 Jun 2018	30 Apr 2018
BH5 0.3-0.4	SE178319.018	LB146373	20 Apr 2018	23 Apr 2018	04 May 2018	24 Apr 2018	03 Jun 2018	30 Apr 2018
BH6 0.3-0.4	SE178319.019	LB146373	20 Apr 2018	23 Apr 2018	04 May 2018	24 Apr 2018	03 Jun 2018	30 Apr 2018
BH6 0.6-0.7	SE178319.020	LB146373	20 Apr 2018	23 Apr 2018	04 May 2018	24 Apr 2018	03 Jun 2018	01 May 2018
BH7 0.2-0.3	SE178319.021	LB146373	20 Apr 2018	23 Apr 2018	04 May 2018	24 Apr 2018	03 Jun 2018	30 Apr 2018
BH8M 0.5-0.6	SE178319.022	LB146373	20 Apr 2018	23 Apr 2018	04 May 2018	24 Apr 2018	03 Jun 2018	30 Apr 2018
BH9 0.2-0.3	SE178319.025	LB146373	20 Apr 2018	23 Apr 2018	04 May 2018	24 Apr 2018	03 Jun 2018	30 Apr 2018
BH9 0.9-1.0	SE178319.026	LB146373	20 Apr 2018	23 Apr 2018	04 May 2018	24 Apr 2018	03 Jun 2018	01 May 2018
QD1	SE178319.027	LB146373	20 Apr 2018	23 Apr 2018	04 May 2018	24 Apr 2018	03 Jun 2018	01 May 2018

PAH (Polynuclear Aromatic Hydrocarbons) in Soil — Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M 0.2-0.3	SE178319.001	LB146373	20 Apr 2018	23 Apr 2018	04 May 2018	24 Apr 2018	03 Jun 2018	30 Apr 2018
BH1M 0.6-0.7	SE178319.002	LB146373	20 Apr 2018	23 Apr 2018	04 May 2018	24 Apr 2018	03 Jun 2018	30 Apr 2018
BH2M 0.2-0.3	SE178319.008	LB146373	20 Apr 2018	23 Apr 2018	04 May 2018	24 Apr 2018	03 Jun 2018	30 Apr 2018
BH2M 0.5-0.6	SE178319.009	LB146373	20 Apr 2018	23 Apr 2018	04 May 2018	24 Apr 2018	03 Jun 2018	30 Apr 2018
BH3 0.2-0.3	SE178319.016	LB146373	20 Apr 2018	23 Apr 2018	04 May 2018	24 Apr 2018	03 Jun 2018	30 Apr 2018
BH4 0.2-0.3	SE178319.017	LB146373	20 Apr 2018	23 Apr 2018	04 May 2018	24 Apr 2018	03 Jun 2018	30 Apr 2018
BH5 0.3-0.4	SE178319.018	LB146373	20 Apr 2018	23 Apr 2018	04 May 2018	24 Apr 2018	03 Jun 2018	30 Apr 2018
BH6 0.3-0.4	SE178319.019	LB146373	20 Apr 2018	23 Apr 2018	04 May 2018	24 Apr 2018	03 Jun 2018	30 Apr 2018
BH6 0.6-0.7	SE178319.020	LB146373	20 Apr 2018	23 Apr 2018	04 May 2018	24 Apr 2018	03 Jun 2018	30 Apr 2018
BH7 0.2-0.3	SE178319.021	LB146373	20 Apr 2018	23 Apr 2018	04 May 2018	24 Apr 2018	03 Jun 2018	30 Apr 2018
BH8M 0.5-0.6	SE178319.022	LB146373	20 Apr 2018	23 Apr 2018	04 May 2018	24 Apr 2018	03 Jun 2018	30 Apr 2018
BH9 0.2-0.3	SE178319.025	LB146373	20 Apr 2018	23 Apr 2018	04 May 2018	24 Apr 2018	03 Jun 2018	30 Apr 2018
BH9 0.9-1.0	SE178319.026	LB146373	20 Apr 2018	23 Apr 2018	04 May 2018	24 Apr 2018	03 Jun 2018	30 Apr 2018
QD1	SE178319.027	LB146373	20 Apr 2018	23 Apr 2018	04 May 2018	24 Apr 2018	03 Jun 2018	01 May 2018

PCBs in Soil — Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M 0.2-0.3	SE178319.001	LB146373	20 Apr 2018	23 Apr 2018	04 May 2018	24 Apr 2018	03 Jun 2018	30 Apr 2018
BH1M 0.6-0.7	SE178319.002	LB146373	20 Apr 2018	23 Apr 2018	04 May 2018	24 Apr 2018	03 Jun 2018	01 May 2018
BH2M 0.2-0.3	SE178319.008	LB146373	20 Apr 2018	23 Apr 2018	04 May 2018	24 Apr 2018	03 Jun 2018	30 Apr 2018
BH2M 0.5-0.6	SE178319.009	LB146373	20 Apr 2018	23 Apr 2018	04 May 2018	24 Apr 2018	03 Jun 2018	01 May 2018
BH3 0.2-0.3	SE178319.016	LB146373	20 Apr 2018	23 Apr 2018	04 May 2018	24 Apr 2018	03 Jun 2018	30 Apr 2018
BH4 0.2-0.3	SE178319.017	LB146373	20 Apr 2018	23 Apr 2018	04 May 2018	24 Apr 2018	03 Jun 2018	30 Apr 2018
BH5 0.3-0.4	SE178319.018	LB146373	20 Apr 2018	23 Apr 2018	04 May 2018	24 Apr 2018	03 Jun 2018	30 Apr 2018
BH6 0.3-0.4	SE178319.019	LB146373	20 Apr 2018	23 Apr 2018	04 May 2018	24 Apr 2018	03 Jun 2018	30 Apr 2018
BH6 0.6-0.7	SE178319.020	LB146373	20 Apr 2018	23 Apr 2018	04 May 2018	24 Apr 2018	03 Jun 2018	01 May 2018
BH7 0.2-0.3	SE178319.021	LB146373	20 Apr 2018	23 Apr 2018	04 May 2018	24 Apr 2018	03 Jun 2018	30 Apr 2018
BH8M 0.5-0.6	SE178319.022	LB146373	20 Apr 2018	23 Apr 2018	04 May 2018	24 Apr 2018	03 Jun 2018	30 Apr 2018
BH9 0.2-0.3	SE178319.025	LB146373	20 Apr 2018	23 Apr 2018	04 May 2018	24 Apr 2018	03 Jun 2018	30 Apr 2018
BH9 0.9-1.0	SE178319.026	LB146373	20 Apr 2018	23 Apr 2018	04 May 2018	24 Apr 2018	03 Jun 2018	01 May 2018
QD1	SE178319.027	LB146373	20 Apr 2018	23 Apr 2018	04 May 2018	24 Apr 2018	03 Jun 2018	01 May 2018

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES — Method: ME-(AU)-[ENV]AN040/AN320

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M 0.2-0.3	SE178319.001	LB146547	20 Apr 2018	23 Apr 2018	17 Oct 2018	27 Apr 2018	17 Oct 2018	01 May 2018
BH1M 0.6-0.7	SE178319.002	LB146547	20 Apr 2018	23 Apr 2018	17 Oct 2018	27 Apr 2018	17 Oct 2018	01 May 2018
BH2M 0.2-0.3	SE178319.008	LB146547	20 Apr 2018	23 Apr 2018	17 Oct 2018	27 Apr 2018	17 Oct 2018	01 May 2018
BH2M 0.5-0.6	SE178319.009	LB146547	20 Apr 2018	23 Apr 2018	17 Oct 2018	27 Apr 2018	17 Oct 2018	01 May 2018

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS “Field Sampling Guide for Containers and Holding Time” (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES (continued)

Method: ME-(AU)-[ENV]AN040/AN320

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH3 0.2-0.3	SE178319.016	LB146547	20 Apr 2018	23 Apr 2018	17 Oct 2018	27 Apr 2018	17 Oct 2018	01 May 2018
BH4 0.2-0.3	SE178319.017	LB146547	20 Apr 2018	23 Apr 2018	17 Oct 2018	27 Apr 2018	17 Oct 2018	01 May 2018
BH5 0.3-0.4	SE178319.018	LB146547	20 Apr 2018	23 Apr 2018	17 Oct 2018	27 Apr 2018	17 Oct 2018	01 May 2018
BH6 0.3-0.4	SE178319.019	LB146547	20 Apr 2018	23 Apr 2018	17 Oct 2018	27 Apr 2018	17 Oct 2018	01 May 2018
BH6 0.6-0.7	SE178319.020	LB146547	20 Apr 2018	23 Apr 2018	17 Oct 2018	27 Apr 2018	17 Oct 2018	01 May 2018
BH7 0.2-0.3	SE178319.021	LB146547	20 Apr 2018	23 Apr 2018	17 Oct 2018	27 Apr 2018	17 Oct 2018	01 May 2018
BH8M 0.5-0.6	SE178319.022	LB146547	20 Apr 2018	23 Apr 2018	17 Oct 2018	27 Apr 2018	17 Oct 2018	01 May 2018
BH9 0.2-0.3	SE178319.025	LB146547	20 Apr 2018	23 Apr 2018	17 Oct 2018	27 Apr 2018	17 Oct 2018	01 May 2018
BH9 0.9-1.0	SE178319.026	LB146547	20 Apr 2018	23 Apr 2018	17 Oct 2018	27 Apr 2018	17 Oct 2018	01 May 2018
QD1	SE178319.027	LB146547	20 Apr 2018	23 Apr 2018	17 Oct 2018	27 Apr 2018	17 Oct 2018	01 May 2018

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QR1	SE178319.028	LB146391	20 Apr 2018	23 Apr 2018	17 Oct 2018	26 Apr 2018	17 Oct 2018	26 Apr 2018

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M 0.2-0.3	SE178319.001	LB146373	20 Apr 2018	23 Apr 2018	04 May 2018	24 Apr 2018	03 Jun 2018	01 May 2018
BH1M 0.6-0.7	SE178319.002	LB146373	20 Apr 2018	23 Apr 2018	04 May 2018	24 Apr 2018	03 Jun 2018	01 May 2018
BH2M 0.2-0.3	SE178319.008	LB146373	20 Apr 2018	23 Apr 2018	04 May 2018	24 Apr 2018	03 Jun 2018	01 May 2018
BH2M 0.5-0.6	SE178319.009	LB146373	20 Apr 2018	23 Apr 2018	04 May 2018	24 Apr 2018	03 Jun 2018	01 May 2018
BH3 0.2-0.3	SE178319.016	LB146373	20 Apr 2018	23 Apr 2018	04 May 2018	24 Apr 2018	03 Jun 2018	01 May 2018
BH4 0.2-0.3	SE178319.017	LB146373	20 Apr 2018	23 Apr 2018	04 May 2018	24 Apr 2018	03 Jun 2018	30 Apr 2018
BH5 0.3-0.4	SE178319.018	LB146373	20 Apr 2018	23 Apr 2018	04 May 2018	24 Apr 2018	03 Jun 2018	30 Apr 2018
BH6 0.3-0.4	SE178319.019	LB146373	20 Apr 2018	23 Apr 2018	04 May 2018	24 Apr 2018	03 Jun 2018	30 Apr 2018
BH6 0.6-0.7	SE178319.020	LB146373	20 Apr 2018	23 Apr 2018	04 May 2018	24 Apr 2018	03 Jun 2018	30 Apr 2018
BH7 0.2-0.3	SE178319.021	LB146373	20 Apr 2018	23 Apr 2018	04 May 2018	24 Apr 2018	03 Jun 2018	01 May 2018
BH8M 0.5-0.6	SE178319.022	LB146373	20 Apr 2018	23 Apr 2018	04 May 2018	24 Apr 2018	03 Jun 2018	01 May 2018
BH9 0.2-0.3	SE178319.025	LB146373	20 Apr 2018	23 Apr 2018	04 May 2018	24 Apr 2018	03 Jun 2018	01 May 2018
BH9 0.9-1.0	SE178319.026	LB146373	20 Apr 2018	23 Apr 2018	04 May 2018	24 Apr 2018	03 Jun 2018	30 Apr 2018
QD1	SE178319.027	LB146373	20 Apr 2018	23 Apr 2018	04 May 2018	24 Apr 2018	03 Jun 2018	30 Apr 2018

TRH (Total Recoverable Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN403

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QR1	SE178319.028	LB146443	20 Apr 2018	23 Apr 2018	27 Apr 2018	26 Apr 2018	05 Jun 2018	30 Apr 2018

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M 0.2-0.3	SE178319.001	LB146528	20 Apr 2018	23 Apr 2018	04 May 2018	27 Apr 2018	06 Jun 2018	30 Apr 2018
BH1M 0.6-0.7	SE178319.002	LB146528	20 Apr 2018	23 Apr 2018	04 May 2018	27 Apr 2018	06 Jun 2018	30 Apr 2018
BH2M 0.2-0.3	SE178319.008	LB146528	20 Apr 2018	23 Apr 2018	04 May 2018	27 Apr 2018	06 Jun 2018	30 Apr 2018
BH2M 0.5-0.6	SE178319.009	LB146528	20 Apr 2018	23 Apr 2018	04 May 2018	27 Apr 2018	06 Jun 2018	30 Apr 2018
BH3 0.2-0.3	SE178319.016	LB146528	20 Apr 2018	23 Apr 2018	04 May 2018	27 Apr 2018	06 Jun 2018	30 Apr 2018
BH4 0.2-0.3	SE178319.017	LB146528	20 Apr 2018	23 Apr 2018	04 May 2018	27 Apr 2018	06 Jun 2018	30 Apr 2018
BH5 0.3-0.4	SE178319.018	LB146528	20 Apr 2018	23 Apr 2018	04 May 2018	27 Apr 2018	06 Jun 2018	30 Apr 2018
BH6 0.3-0.4	SE178319.019	LB146528	20 Apr 2018	23 Apr 2018	04 May 2018	27 Apr 2018	06 Jun 2018	30 Apr 2018
BH6 0.6-0.7	SE178319.020	LB146528	20 Apr 2018	23 Apr 2018	04 May 2018	27 Apr 2018	06 Jun 2018	30 Apr 2018
BH7 0.2-0.3	SE178319.021	LB146528	20 Apr 2018	23 Apr 2018	04 May 2018	27 Apr 2018	06 Jun 2018	30 Apr 2018
BH8M 0.5-0.6	SE178319.022	LB146528	20 Apr 2018	23 Apr 2018	04 May 2018	27 Apr 2018	06 Jun 2018	30 Apr 2018
BH9 0.2-0.3	SE178319.025	LB146528	20 Apr 2018	23 Apr 2018	04 May 2018	27 Apr 2018	06 Jun 2018	30 Apr 2018
BH9 0.9-1.0	SE178319.026	LB146528	20 Apr 2018	23 Apr 2018	04 May 2018	27 Apr 2018	06 Jun 2018	30 Apr 2018
QD1	SE178319.027	LB146528	20 Apr 2018	23 Apr 2018	04 May 2018	27 Apr 2018	06 Jun 2018	30 Apr 2018
TS1	SE178319.029	LB146528	20 Apr 2018	23 Apr 2018	04 May 2018	27 Apr 2018	06 Jun 2018	30 Apr 2018
TB1	SE178319.030	LB146528	20 Apr 2018	23 Apr 2018	04 May 2018	27 Apr 2018	06 Jun 2018	30 Apr 2018

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QR1	SE178319.028	LB146370	20 Apr 2018	23 Apr 2018	27 Apr 2018	24 Apr 2018	03 Jun 2018	26 Apr 2018

HOLDING TIME SUMMARY

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Volatile Petroleum Hydrocarbons in Soil — Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M 0.2-0.3	SE178319.001	LB146528	20 Apr 2018	23 Apr 2018	04 May 2018	27 Apr 2018	06 Jun 2018	30 Apr 2018
BH1M 0.6-0.7	SE178319.002	LB146528	20 Apr 2018	23 Apr 2018	04 May 2018	27 Apr 2018	06 Jun 2018	30 Apr 2018
BH2M 0.2-0.3	SE178319.008	LB146528	20 Apr 2018	23 Apr 2018	04 May 2018	27 Apr 2018	06 Jun 2018	30 Apr 2018
BH2M 0.5-0.6	SE178319.009	LB146528	20 Apr 2018	23 Apr 2018	04 May 2018	27 Apr 2018	06 Jun 2018	30 Apr 2018
BH3 0.2-0.3	SE178319.016	LB146528	20 Apr 2018	23 Apr 2018	04 May 2018	27 Apr 2018	06 Jun 2018	30 Apr 2018
BH4 0.2-0.3	SE178319.017	LB146528	20 Apr 2018	23 Apr 2018	04 May 2018	27 Apr 2018	06 Jun 2018	30 Apr 2018
BH5 0.3-0.4	SE178319.018	LB146528	20 Apr 2018	23 Apr 2018	04 May 2018	27 Apr 2018	06 Jun 2018	30 Apr 2018
BH6 0.3-0.4	SE178319.019	LB146528	20 Apr 2018	23 Apr 2018	04 May 2018	27 Apr 2018	06 Jun 2018	30 Apr 2018
BH6 0.6-0.7	SE178319.020	LB146528	20 Apr 2018	23 Apr 2018	04 May 2018	27 Apr 2018	06 Jun 2018	30 Apr 2018
BH7 0.2-0.3	SE178319.021	LB146528	20 Apr 2018	23 Apr 2018	04 May 2018	27 Apr 2018	06 Jun 2018	30 Apr 2018
BH8M 0.5-0.6	SE178319.022	LB146528	20 Apr 2018	23 Apr 2018	04 May 2018	27 Apr 2018	06 Jun 2018	30 Apr 2018
BH9 0.2-0.3	SE178319.025	LB146528	20 Apr 2018	23 Apr 2018	04 May 2018	27 Apr 2018	06 Jun 2018	30 Apr 2018
BH9 0.9-1.0	SE178319.026	LB146528	20 Apr 2018	23 Apr 2018	04 May 2018	27 Apr 2018	06 Jun 2018	30 Apr 2018
QD1	SE178319.027	LB146528	20 Apr 2018	23 Apr 2018	04 May 2018	27 Apr 2018	06 Jun 2018	30 Apr 2018
TS1	SE178319.029	LB146528	20 Apr 2018	23 Apr 2018	04 May 2018	27 Apr 2018	06 Jun 2018	01 May 2018
TB1	SE178319.030	LB146528	20 Apr 2018	23 Apr 2018	04 May 2018	27 Apr 2018	06 Jun 2018	01 May 2018

Volatile Petroleum Hydrocarbons in Water — Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QR1	SE178319.028	LB146370	20 Apr 2018	23 Apr 2018	27 Apr 2018	24 Apr 2018	03 Jun 2018	26 Apr 2018

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	BH1M 0.2-0.3	SE178319.001	%	60 - 130%	93
	BH2M 0.2-0.3	SE178319.008	%	60 - 130%	108
	BH3 0.2-0.3	SE178319.016	%	60 - 130%	99
	BH4 0.2-0.3	SE178319.017	%	60 - 130%	111
	BH5 0.3-0.4	SE178319.018	%	60 - 130%	113
	BH6 0.3-0.4	SE178319.019	%	60 - 130%	89
	BH7 0.2-0.3	SE178319.021	%	60 - 130%	109
	BH8M 0.5-0.6	SE178319.022	%	60 - 130%	94
	BH9 0.2-0.3	SE178319.025	%	60 - 130%	81

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	BH1M 0.2-0.3	SE178319.001	%	60 - 130%	96
	BH2M 0.2-0.3	SE178319.008	%	60 - 130%	90
	BH3 0.2-0.3	SE178319.016	%	60 - 130%	96
	BH4 0.2-0.3	SE178319.017	%	60 - 130%	92
	BH5 0.3-0.4	SE178319.018	%	60 - 130%	98
	BH6 0.3-0.4	SE178319.019	%	60 - 130%	98
	BH7 0.2-0.3	SE178319.021	%	60 - 130%	94
	BH8M 0.5-0.6	SE178319.022	%	60 - 130%	98
	BH9 0.2-0.3	SE178319.025	%	60 - 130%	92
d14-p-terphenyl (Surrogate)	BH1M 0.2-0.3	SE178319.001	%	60 - 130%	110
	BH2M 0.2-0.3	SE178319.008	%	60 - 130%	106
	BH3 0.2-0.3	SE178319.016	%	60 - 130%	110
	BH4 0.2-0.3	SE178319.017	%	60 - 130%	112
	BH5 0.3-0.4	SE178319.018	%	60 - 130%	108
	BH6 0.3-0.4	SE178319.019	%	60 - 130%	110
	BH7 0.2-0.3	SE178319.021	%	60 - 130%	108
	BH8M 0.5-0.6	SE178319.022	%	60 - 130%	106
	BH9 0.2-0.3	SE178319.025	%	60 - 130%	100

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	BH1M 0.2-0.3	SE178319.001	%	70 - 130%	96
	BH1M 0.6-0.7	SE178319.002	%	70 - 130%	94
	BH2M 0.2-0.3	SE178319.008	%	70 - 130%	90
	BH2M 0.5-0.6	SE178319.009	%	70 - 130%	96
	BH3 0.2-0.3	SE178319.016	%	70 - 130%	96
	BH4 0.2-0.3	SE178319.017	%	70 - 130%	92
	BH5 0.3-0.4	SE178319.018	%	70 - 130%	98
	BH6 0.3-0.4	SE178319.019	%	70 - 130%	98
	BH6 0.6-0.7	SE178319.020	%	70 - 130%	96
	BH7 0.2-0.3	SE178319.021	%	70 - 130%	94
	BH8M 0.5-0.6	SE178319.022	%	70 - 130%	98
	BH9 0.2-0.3	SE178319.025	%	70 - 130%	92
	BH9 0.9-1.0	SE178319.026	%	70 - 130%	96
d14-p-terphenyl (Surrogate)	BH1M 0.2-0.3	SE178319.001	%	70 - 130%	110
	BH1M 0.6-0.7	SE178319.002	%	70 - 130%	112
	BH2M 0.2-0.3	SE178319.008	%	70 - 130%	106
	BH2M 0.5-0.6	SE178319.009	%	70 - 130%	106
	BH3 0.2-0.3	SE178319.016	%	70 - 130%	110
	BH4 0.2-0.3	SE178319.017	%	70 - 130%	112
	BH5 0.3-0.4	SE178319.018	%	70 - 130%	108
	BH6 0.3-0.4	SE178319.019	%	70 - 130%	110
	BH6 0.6-0.7	SE178319.020	%	70 - 130%	114
	BH7 0.2-0.3	SE178319.021	%	70 - 130%	108
	BH8M 0.5-0.6	SE178319.022	%	70 - 130%	106
	BH9 0.2-0.3	SE178319.025	%	70 - 130%	100
	BH9 0.9-1.0	SE178319.026	%	70 - 130%	108
d5-nitrobenzene (Surrogate)	BH1M 0.2-0.3	SE178319.001	%	70 - 130%	94
	BH1M 0.6-0.7	SE178319.002	%	70 - 130%	92
	BH2M 0.2-0.3	SE178319.008	%	70 - 130%	90

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d5-nitrobenzene (Surrogate)	BH2M 0.5-0.6	SE178319.009	%	70 - 130%	92
	BH3 0.2-0.3	SE178319.016	%	70 - 130%	92
	BH4 0.2-0.3	SE178319.017	%	70 - 130%	92
	BH5 0.3-0.4	SE178319.018	%	70 - 130%	92
	BH6 0.3-0.4	SE178319.019	%	70 - 130%	94
	BH6 0.6-0.7	SE178319.020	%	70 - 130%	96
	BH7 0.2-0.3	SE178319.021	%	70 - 130%	90
	BH8M 0.5-0.6	SE178319.022	%	70 - 130%	94
	BH9 0.2-0.3	SE178319.025	%	70 - 130%	90
	BH9 0.9-1.0	SE178319.026	%	70 - 130%	94

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	BH1M 0.2-0.3	SE178319.001	%	60 - 130%	93
	BH2M 0.2-0.3	SE178319.008	%	60 - 130%	108
	BH3 0.2-0.3	SE178319.016	%	60 - 130%	99
	BH4 0.2-0.3	SE178319.017	%	60 - 130%	111
	BH5 0.3-0.4	SE178319.018	%	60 - 130%	113
	BH6 0.3-0.4	SE178319.019	%	60 - 130%	89
	BH7 0.2-0.3	SE178319.021	%	60 - 130%	109
	BH8M 0.5-0.6	SE178319.022	%	60 - 130%	94
	BH9 0.2-0.3	SE178319.025	%	60 - 130%	81

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH1M 0.2-0.3	SE178319.001	%	60 - 130%	95
	BH1M 0.6-0.7	SE178319.002	%	60 - 130%	76
	BH2M 0.2-0.3	SE178319.008	%	60 - 130%	89
	BH2M 0.5-0.6	SE178319.009	%	60 - 130%	81
	BH3 0.2-0.3	SE178319.016	%	60 - 130%	94
	BH4 0.2-0.3	SE178319.017	%	60 - 130%	74
	BH5 0.3-0.4	SE178319.018	%	60 - 130%	77
	BH6 0.3-0.4	SE178319.019	%	60 - 130%	83
	BH6 0.6-0.7	SE178319.020	%	60 - 130%	86
	BH7 0.2-0.3	SE178319.021	%	60 - 130%	81
	BH8M 0.5-0.6	SE178319.022	%	60 - 130%	78
	BH9 0.2-0.3	SE178319.025	%	60 - 130%	78
	BH9 0.9-1.0	SE178319.026	%	60 - 130%	72
	QD1	SE178319.027	%	60 - 130%	75
	TS1	SE178319.029	%	60 - 130%	80
	TB1	SE178319.030	%	60 - 130%	86
d4-1,2-dichloroethane (Surrogate)	BH1M 0.2-0.3	SE178319.001	%	60 - 130%	79
	BH1M 0.6-0.7	SE178319.002	%	60 - 130%	86
	BH2M 0.2-0.3	SE178319.008	%	60 - 130%	89
	BH2M 0.5-0.6	SE178319.009	%	60 - 130%	74
	BH3 0.2-0.3	SE178319.016	%	60 - 130%	72
	BH4 0.2-0.3	SE178319.017	%	60 - 130%	81
	BH5 0.3-0.4	SE178319.018	%	60 - 130%	85
	BH6 0.3-0.4	SE178319.019	%	60 - 130%	82
	BH6 0.6-0.7	SE178319.020	%	60 - 130%	101
	BH7 0.2-0.3	SE178319.021	%	60 - 130%	82
	BH8M 0.5-0.6	SE178319.022	%	60 - 130%	77
	BH9 0.2-0.3	SE178319.025	%	60 - 130%	74
	BH9 0.9-1.0	SE178319.026	%	60 - 130%	77
	QD1	SE178319.027	%	60 - 130%	73
	TS1	SE178319.029	%	60 - 130%	75
	TB1	SE178319.030	%	60 - 130%	74
d8-toluene (Surrogate)	BH1M 0.2-0.3	SE178319.001	%	60 - 130%	77
	BH1M 0.6-0.7	SE178319.002	%	60 - 130%	116
	BH2M 0.2-0.3	SE178319.008	%	60 - 130%	89
	BH2M 0.5-0.6	SE178319.009	%	60 - 130%	104
	BH3 0.2-0.3	SE178319.016	%	60 - 130%	94

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil (continued) — Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d8-toluene (Surrogate)	BH4 0.2-0.3	SE178319.017	%	60 - 130%	117
	BH5 0.3-0.4	SE178319.018	%	60 - 130%	110
	BH6 0.3-0.4	SE178319.019	%	60 - 130%	102
	BH6 0.6-0.7	SE178319.020	%	60 - 130%	119
	BH7 0.2-0.3	SE178319.021	%	60 - 130%	117
	BH8M 0.5-0.6	SE178319.022	%	60 - 130%	100
	BH9 0.2-0.3	SE178319.025	%	60 - 130%	114
	BH9 0.9-1.0	SE178319.026	%	60 - 130%	115
	QD1	SE178319.027	%	60 - 130%	114
	TS1	SE178319.029	%	60 - 130%	112
	TB1	SE178319.030	%	60 - 130%	117
Dibromofluoromethane (Surrogate)	BH1M 0.2-0.3	SE178319.001	%	60 - 130%	93
	BH1M 0.6-0.7	SE178319.002	%	60 - 130%	77
	BH2M 0.2-0.3	SE178319.008	%	60 - 130%	91
	BH2M 0.5-0.6	SE178319.009	%	60 - 130%	79
	BH3 0.2-0.3	SE178319.016	%	60 - 130%	92
	BH4 0.2-0.3	SE178319.017	%	60 - 130%	99
	BH5 0.3-0.4	SE178319.018	%	60 - 130%	91
	BH6 0.3-0.4	SE178319.019	%	60 - 130%	73
	BH6 0.6-0.7	SE178319.020	%	60 - 130%	90
	BH7 0.2-0.3	SE178319.021	%	60 - 130%	85
	BH8M 0.5-0.6	SE178319.022	%	60 - 130%	74
	BH9 0.2-0.3	SE178319.025	%	60 - 130%	80
	BH9 0.9-1.0	SE178319.026	%	60 - 130%	88
	QD1	SE178319.027	%	60 - 130%	74
	TS1	SE178319.029	%	60 - 130%	82
	TB1	SE178319.030	%	60 - 130%	89

VOCs in Water — Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	QR1	SE178319.028	%	40 - 130%	79
d4-1,2-dichloroethane (Surrogate)	QR1	SE178319.028	%	40 - 130%	121
d8-toluene (Surrogate)	QR1	SE178319.028	%	40 - 130%	86
Dibromofluoromethane (Surrogate)	QR1	SE178319.028	%	40 - 130%	115

Volatile Petroleum Hydrocarbons in Soil — Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH1M 0.2-0.3	SE178319.001	%	60 - 130%	95
	BH1M 0.6-0.7	SE178319.002	%	60 - 130%	76
	BH2M 0.2-0.3	SE178319.008	%	60 - 130%	89
	BH2M 0.5-0.6	SE178319.009	%	60 - 130%	81
	BH3 0.2-0.3	SE178319.016	%	60 - 130%	94
	BH4 0.2-0.3	SE178319.017	%	60 - 130%	74
	BH5 0.3-0.4	SE178319.018	%	60 - 130%	77
	BH6 0.3-0.4	SE178319.019	%	60 - 130%	83
	BH6 0.6-0.7	SE178319.020	%	60 - 130%	86
	BH7 0.2-0.3	SE178319.021	%	60 - 130%	81
	BH8M 0.5-0.6	SE178319.022	%	60 - 130%	78
	BH9 0.2-0.3	SE178319.025	%	60 - 130%	78
	BH9 0.9-1.0	SE178319.026	%	60 - 130%	72
	QD1	SE178319.027	%	60 - 130%	75
d4-1,2-dichloroethane (Surrogate)	BH1M 0.2-0.3	SE178319.001	%	60 - 130%	79
	BH1M 0.6-0.7	SE178319.002	%	60 - 130%	86
	BH2M 0.2-0.3	SE178319.008	%	60 - 130%	89
	BH2M 0.5-0.6	SE178319.009	%	60 - 130%	74
	BH3 0.2-0.3	SE178319.016	%	60 - 130%	72
	BH4 0.2-0.3	SE178319.017	%	60 - 130%	81
	BH5 0.3-0.4	SE178319.018	%	60 - 130%	85
	BH6 0.3-0.4	SE178319.019	%	60 - 130%	82
	BH6 0.6-0.7	SE178319.020	%	60 - 130%	101
	BH7 0.2-0.3	SE178319.021	%	60 - 130%	82
	BH8M 0.5-0.6	SE178319.022	%	60 - 130%	77

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Volatile Petroleum Hydrocarbons in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d4-1,2-dichloroethane (Surrogate)	BH9 0.2-0.3	SE178319.025	%	60 - 130%	74
	BH9 0.9-1.0	SE178319.026	%	60 - 130%	77
	QD1	SE178319.027	%	60 - 130%	73
d8-toluene (Surrogate)	BH1M 0.2-0.3	SE178319.001	%	60 - 130%	77
	BH1M 0.6-0.7	SE178319.002	%	60 - 130%	116
	BH2M 0.2-0.3	SE178319.008	%	60 - 130%	89
	BH2M 0.5-0.6	SE178319.009	%	60 - 130%	104
	BH3 0.2-0.3	SE178319.016	%	60 - 130%	94
	BH4 0.2-0.3	SE178319.017	%	60 - 130%	117
	BH5 0.3-0.4	SE178319.018	%	60 - 130%	110
	BH6 0.3-0.4	SE178319.019	%	60 - 130%	102
	BH6 0.6-0.7	SE178319.020	%	60 - 130%	119
	BH7 0.2-0.3	SE178319.021	%	60 - 130%	117
	BH8M 0.5-0.6	SE178319.022	%	60 - 130%	100
	BH9 0.2-0.3	SE178319.025	%	60 - 130%	114
	BH9 0.9-1.0	SE178319.026	%	60 - 130%	115
	QD1	SE178319.027	%	60 - 130%	114
Dibromofluoromethane (Surrogate)	BH1M 0.2-0.3	SE178319.001	%	60 - 130%	93
	BH1M 0.6-0.7	SE178319.002	%	60 - 130%	77
	BH2M 0.2-0.3	SE178319.008	%	60 - 130%	91
	BH2M 0.5-0.6	SE178319.009	%	60 - 130%	79
	BH3 0.2-0.3	SE178319.016	%	60 - 130%	92
	BH4 0.2-0.3	SE178319.017	%	60 - 130%	99
	BH5 0.3-0.4	SE178319.018	%	60 - 130%	91
	BH6 0.3-0.4	SE178319.019	%	60 - 130%	73
	BH6 0.6-0.7	SE178319.020	%	60 - 130%	90
	BH7 0.2-0.3	SE178319.021	%	60 - 130%	85
	BH8M 0.5-0.6	SE178319.022	%	60 - 130%	74
	BH9 0.2-0.3	SE178319.025	%	60 - 130%	80
	BH9 0.9-1.0	SE178319.026	%	60 - 130%	88
	QD1	SE178319.027	%	60 - 130%	74

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	QR1	SE178319.028	%	40 - 130%	79
d4-1,2-dichloroethane (Surrogate)	QR1	SE178319.028	%	60 - 130%	121
d8-toluene (Surrogate)	QR1	SE178319.028	%	40 - 130%	86
Dibromofluoromethane (Surrogate)	QR1	SE178319.028	%	40 - 130%	115

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Sample Number		Parameter	Units	LOR	Result
LB146397.001		Mercury	mg/L	0.0001	<0.0001

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number		Parameter	Units	LOR	Result
LB146571.001		Mercury	mg/kg	0.05	<0.05

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB146373.001		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
		Alpha BHC	mg/kg	0.1	<0.1
		Lindane	mg/kg	0.1	<0.1
		Heptachlor	mg/kg	0.1	<0.1
		Aldrin	mg/kg	0.1	<0.1
		Beta BHC	mg/kg	0.1	<0.1
		Delta BHC	mg/kg	0.1	<0.1
		Heptachlor epoxide	mg/kg	0.1	<0.1
		Alpha Endosulfan	mg/kg	0.2	<0.2
		Gamma Chlordane	mg/kg	0.1	<0.1
		Alpha Chlordane	mg/kg	0.1	<0.1
		p,p'-DDE	mg/kg	0.1	<0.1
		Dieldrin	mg/kg	0.2	<0.2
		Endrin	mg/kg	0.2	<0.2
		Beta Endosulfan	mg/kg	0.2	<0.2
		p,p'-DDD	mg/kg	0.1	<0.1
		p,p'-DDT	mg/kg	0.1	<0.1
		Endosulfan sulphate	mg/kg	0.1	<0.1
		Endrin Aldehyde	mg/kg	0.1	<0.1
		Methoxychlor	mg/kg	0.1	<0.1
		Endrin Ketone	mg/kg	0.1	<0.1
		Isodrin	mg/kg	0.1	<0.1
		Mirex	mg/kg	0.1	<0.1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	101

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB146373.001		Dichlorvos	mg/kg	0.5	<0.5
		Dimethoate	mg/kg	0.5	<0.5
		Diazinon (Dimpylate)	mg/kg	0.5	<0.5
		Fenitrothion	mg/kg	0.2	<0.2
		Malathion	mg/kg	0.2	<0.2
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2
		Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2
		Bromophos Ethyl	mg/kg	0.2	<0.2
		Methidathion	mg/kg	0.5	<0.5
		Ethion	mg/kg	0.2	<0.2
		Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2
	Surrogates	2-fluorobiphenyl (Surrogate)	%	-	100
		d14-p-terphenyl (Surrogate)	%	-	116

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB146373.001		Naphthalene	mg/kg	0.1	<0.1
		2-methylnaphthalene	mg/kg	0.1	<0.1
		1-methylnaphthalene	mg/kg	0.1	<0.1
		Acenaphthylene	mg/kg	0.1	<0.1
		Acenaphthene	mg/kg	0.1	<0.1
		Fluorene	mg/kg	0.1	<0.1
		Phenanthrene	mg/kg	0.1	<0.1
		Anthracene	mg/kg	0.1	<0.1

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB146373.001		Fluoranthene	mg/kg	0.1	<0.1
		Pyrene	mg/kg	0.1	<0.1
		Benzo(a)anthracene	mg/kg	0.1	<0.1
		Chrysene	mg/kg	0.1	<0.1
		Benzo(a)pyrene	mg/kg	0.1	<0.1
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1
		Benzo(ghi)perylene	mg/kg	0.1	<0.1
		Total PAH (18)	mg/kg	0.8	<0.8
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	100
		2-fluorobiphenyl (Surrogate)	%	-	100
		d14-p-terphenyl (Surrogate)	%	-	116

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB146373.001		Arochlor 1016	mg/kg	0.2	<0.2
		Arochlor 1221	mg/kg	0.2	<0.2
		Arochlor 1232	mg/kg	0.2	<0.2
		Arochlor 1242	mg/kg	0.2	<0.2
		Arochlor 1248	mg/kg	0.2	<0.2
		Arochlor 1254	mg/kg	0.2	<0.2
		Arochlor 1260	mg/kg	0.2	<0.2
		Arochlor 1262	mg/kg	0.2	<0.2
		Arochlor 1268	mg/kg	0.2	<0.2
		Total PCBs (Arochlors)	mg/kg	1	<1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	101

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result
LB146547.001	Arsenic, As	mg/kg	3	<3
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.3	<0.3
	Copper, Cu	mg/kg	0.5	<0.5
	Nickel, Ni	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Zinc, Zn	mg/kg	0.5	<0.5

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result
LB146391.001	Arsenic, As	µg/L	1	<1
	Cadmium, Cd	µg/L	0.1	<0.1
	Chromium, Cr	µg/L	1	<1
	Copper, Cu	µg/L	1	<1
	Lead, Pb	µg/L	1	<1
	Nickel, Ni	µg/L	1	<1
	Zinc, Zn	µg/L	5	<5

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result
LB146373.001	TRH C10-C14	mg/kg	20	<20
	TRH C15-C28	mg/kg	45	<45
	TRH C29-C36	mg/kg	45	<45
	TRH C37-C40	mg/kg	100	<100
	TRH C10-C36 Total	mg/kg	110	<110

TRH (Total Recoverable Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result
LB146443.001	TRH C10-C14	µg/L	50	<50
	TRH C15-C28	µg/L	200	<200
	TRH C29-C36	µg/L	200	<200
	TRH C37-C40	µg/L	200	<200

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number	Parameter	Units	LOR

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

VOC's in Soil (continued) — Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB146528.001	Monocyclic Aromatic Hydrocarbons	Benzene	mg/kg	0.1	<0.1
		Toluene	mg/kg	0.1	<0.1
		Ethylbenzene	mg/kg	0.1	<0.1
		m/p-xylene	mg/kg	0.2	<0.2
		o-xylene	mg/kg	0.1	<0.1
	Polycyclic VOCs	Naphthalene	mg/kg	0.1	<0.1
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	76
		d4-1,2-dichloroethane (Surrogate)	%	-	85
		d8-toluene (Surrogate)	%	-	121
		Bromofluorobenzene (Surrogate)	%	-	73
	Totals	Total BTEX	mg/kg	0.6	<0.6

VOCs in Water — Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB146370.001	Monocyclic Aromatic Hydrocarbons	Benzene	µg/L	0.5	<0.5
		Toluene	µg/L	0.5	<0.5
		Ethylbenzene	µg/L	0.5	<0.5
		m/p-xylene	µg/L	1	<1
		o-xylene	µg/L	0.5	<0.5
	Polycyclic VOCs	Naphthalene	µg/L	0.5	<0.5
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	115
		d4-1,2-dichloroethane (Surrogate)	%	-	126
		d8-toluene (Surrogate)	%	-	90
		Bromofluorobenzene (Surrogate)	%	-	80

Volatile Petroleum Hydrocarbons in Soil — Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB146528.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	76
		d4-1,2-dichloroethane (Surrogate)	%	-	85
		d8-toluene (Surrogate)	%	-	121

Volatile Petroleum Hydrocarbons in Water — Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB146370.001		TRH C6-C9	µg/L	40	<40
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	115
		d4-1,2-dichloroethane (Surrogate)	%	-	126
		d8-toluene (Surrogate)	%	-	90
		Bromofluorobenzene (Surrogate)	%	-	80

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178341.002	LB146397.014	Mercury	μg/L	0.0001	<0.0001	<0.0001	200	0
SE178341.003	LB146397.016	Mercury	μg/L	0.0001	<0.0001	<0.0001	200	0

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178319.020	LB146571.014	Mercury	mg/kg	0.05	<0.05	<0.05	200	0
SE178319.027	LB146571.020	Mercury	mg/kg	0.05	0.09	0.14	74	39

Moisture Content

Method: ME-(AU)-[ENV]AN002

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178319.021	LB146659.011	% Moisture	%w/w	0.5	15	12	37	25
SE178388.005	LB146659.022	% Moisture	%w/w	0.5	8.7	8.3	42	4
SE178442.001	LB146659.033	% Moisture	%w/w	0.5	28	27	34	4
SE178442.008	LB146659.041	% Moisture	%w/w	0.5	17	17	36	1

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178319.008	LB146373.027		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	0	200	0
			Alpha BHC	mg/kg	0.1	<0.1	0	200	0
			Lindane	mg/kg	0.1	<0.1	0	200	0
			Heptachlor	mg/kg	0.1	<0.1	0	200	0
			Aldrin	mg/kg	0.1	<0.1	0	200	0
			Beta BHC	mg/kg	0.1	<0.1	0	200	0
			Delta BHC	mg/kg	0.1	<0.1	0	200	0
			Heptachlor epoxide	mg/kg	0.1	<0.1	0	200	0
			o,p'-DDE	mg/kg	0.1	<0.1	0	200	0
			Alpha Endosulfan	mg/kg	0.2	<0.2	0	200	0
			Gamma Chlordane	mg/kg	0.1	<0.1	0	200	0
			Alpha Chlordane	mg/kg	0.1	<0.1	0	200	0
			trans-Nonachlor	mg/kg	0.1	<0.1	0	200	0
			p,p'-DDE	mg/kg	0.1	<0.1	0	200	0
			Dieldrin	mg/kg	0.2	<0.2	0	200	0
			Endrin	mg/kg	0.2	<0.2	0	200	0
			o,p'-DDD	mg/kg	0.1	<0.1	0	200	0
			o,p'-DDT	mg/kg	0.1	<0.1	0	200	0
			Beta Endosulfan	mg/kg	0.2	<0.2	0	200	0
			p,p'-DDD	mg/kg	0.1	<0.1	0	200	0
			p,p'-DDT	mg/kg	0.1	<0.1	0	200	0
			Endosulfan sulphate	mg/kg	0.1	<0.1	0	200	0
			Endrin Aldehyde	mg/kg	0.1	<0.1	0	200	0
			Methoxychlor	mg/kg	0.1	<0.1	0	200	0
			Endrin Ketone	mg/kg	0.1	<0.1	0	200	0
			Isodrin	mg/kg	0.1	<0.1	0	200	0
			Mirex	mg/kg	0.1	<0.1	0	200	0
			Total CLP OC Pesticides	mg/kg	1	<1	0	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.16	0.157	30	3
SE178319.017	LB146373.026		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	0	200	0
			Alpha BHC	mg/kg	0.1	<0.1	0	200	0
			Lindane	mg/kg	0.1	<0.1	0	200	0
			Heptachlor	mg/kg	0.1	<0.1	0	200	0
			Aldrin	mg/kg	0.1	<0.1	0	200	0
			Beta BHC	mg/kg	0.1	<0.1	0	200	0
			Delta BHC	mg/kg	0.1	<0.1	0	200	0
			Heptachlor epoxide	mg/kg	0.1	<0.1	0	200	0
			o,p'-DDE	mg/kg	0.1	<0.1	0	200	0
			Alpha Endosulfan	mg/kg	0.2	<0.2	0	200	0
			Gamma Chlordane	mg/kg	0.1	<0.1	0	200	0
			Alpha Chlordane	mg/kg	0.1	<0.1	0	200	0
			trans-Nonachlor	mg/kg	0.1	<0.1	0	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil (continued) — Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178319.017	LB146373.026		p,p'-DDE	mg/kg	0.1	<0.1	0	200	0
			Dieldrin	mg/kg	0.2	<0.2	0	200	0
			Endrin	mg/kg	0.2	<0.2	0	200	0
			o,p'-DDD	mg/kg	0.1	<0.1	0	200	0
			o,p'-DDT	mg/kg	0.1	<0.1	0	200	0
			Beta Endosulfan	mg/kg	0.2	<0.2	0	200	0
			p,p'-DDD	mg/kg	0.1	<0.1	0	200	0
			p,p'-DDT	mg/kg	0.1	<0.1	0	200	0
			Endosulfan sulphate	mg/kg	0.1	<0.1	0	200	0
			Endrin Aldehyde	mg/kg	0.1	<0.1	0	200	0
			Methoxychlor	mg/kg	0.1	<0.1	0	200	0
			Endrin Ketone	mg/kg	0.1	<0.1	0	200	0
			Isodrin	mg/kg	0.1	<0.1	0	200	0
			Mirex	mg/kg	0.1	<0.1	0	200	0
			Total CLP OC Pesticides	mg/kg	1	<1	0	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.17	0.156	30	7

OP Pesticides in Soil — Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178319.008	LB146373.027		Dichlorvos	mg/kg	0.5	<0.5	0	200	0
			Dimethoate	mg/kg	0.5	<0.5	0	200	0
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	0	200	0
			Fenitrothion	mg/kg	0.2	<0.2	0	200	0
			Malathion	mg/kg	0.2	<0.2	0	200	0
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	0.03	200	0
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	0	200	0
			Bromophos Ethyl	mg/kg	0.2	<0.2	0.02	200	0
			Methidathion	mg/kg	0.5	<0.5	0	200	0
			Ethion	mg/kg	0.2	<0.2	0.06	200	0
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	0	200	0
			Total OP Pesticides*	mg/kg	1.7	<1.7	0	200	0
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.49	30	9
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.55	30	4
SE178319.017	LB146373.026		Dichlorvos	mg/kg	0.5	<0.5	0	200	0
			Dimethoate	mg/kg	0.5	<0.5	0	200	0
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	0	200	0
			Fenitrothion	mg/kg	0.2	<0.2	0	200	0
			Malathion	mg/kg	0.2	<0.2	0	200	0
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	0	200	0
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	0	200	0
			Bromophos Ethyl	mg/kg	0.2	<0.2	0	200	0
			Methidathion	mg/kg	0.5	<0.5	0	200	0
			Ethion	mg/kg	0.2	<0.2	0	200	0
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	0	200	0
			Total OP Pesticides*	mg/kg	1.7	<1.7	0	200	0
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.49	30	6
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.6	0.57	30	2
	LB146373.028		Dichlorvos	mg/kg	0.5	<0.5	0	200	0
			Dimethoate	mg/kg	0.5	<0.5	0	200	0
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	0	200	0
			Fenitrothion	mg/kg	0.2	<0.2	0	200	0
			Malathion	mg/kg	0.2	<0.2	0	200	0
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	0	200	0
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	0	200	0
			Bromophos Ethyl	mg/kg	0.2	<0.2	0	200	0
			Methidathion	mg/kg	0.5	<0.5	0	200	0
			Ethion	mg/kg	0.2	<0.2	0	200	0
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	0	200	0
			Total OP Pesticides*	mg/kg	1.7	<1.7	0	200	0
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.49	30	6
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.6	0.57	30	2

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OP Pesticides in Soil (continued) — Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178319.017	LB146373.029		Dichlorvos	mg/kg	0.5	<0.5	0	200	0
			Dimethoate	mg/kg	0.5	<0.5	0	200	0
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	0	200	0
			Fenitrothion	mg/kg	0.2	<0.2	0	200	0
			Malathion	mg/kg	0.2	<0.2	0	200	0
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	0	200	0
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	0	200	0
			Bromophos Ethyl	mg/kg	0.2	<0.2	0	200	0
			Methidathion	mg/kg	0.5	<0.5	0	200	0
			Ethion	mg/kg	0.2	<0.2	0	200	0
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	0	200	0
			Total OP Pesticides*	mg/kg	1.7	<1.7	0	200	0
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.49	30	6
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.6	0.57	30	2

PAH (Polynuclear Aromatic Hydrocarbons) in Soil — Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178319.008	LB146373.027		Naphthalene	mg/kg	0.1	<0.1	0.02	200	0
			2-methylnaphthalene	mg/kg	0.1	<0.1	0.01	200	0
			1-methylnaphthalene	mg/kg	0.1	<0.1	0.01	200	0
			Acenaphthylene	mg/kg	0.1	<0.1	0.06	197	0
			Acenaphthene	mg/kg	0.1	<0.1	0	200	0
			Fluorene	mg/kg	0.1	<0.1	0.01	200	0
			Phenanthrene	mg/kg	0.1	0.2	0.23	77	14
			Anthracene	mg/kg	0.1	<0.1	0.05	200	0
			Fluoranthene	mg/kg	0.1	0.3	0.32	63	10
			Pyrene	mg/kg	0.1	0.4	0.43	55	12
			Benzo(a)anthracene	mg/kg	0.1	0.2	0.22	79	15
			Chrysene	mg/kg	0.1	0.2	0.21	80	10
			Benzo(b&j)fluoranthene	mg/kg	0.1	0.2	0.21	81	15
			Benzo(k)fluoranthene	mg/kg	0.1	0.1	0.12	117	9
			Benzo(a)pyrene	mg/kg	0.1	0.2	0.22	78	10
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	0.2	0.17	93	13
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	0.02	200	0
			Benzo(ghi)perylene	mg/kg	0.1	0.1	0.16	97	13
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	0.3	0.2957	81	10
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	0.4	0.3957	89	7
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	0.3	0.3457	70	9
			Total PAH (18)	mg/kg	0.8	2.0	2.29	67	12
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.46	30	2
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.49	30	9
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.55	30	4
SE178319.017	LB146373.026		Naphthalene	mg/kg	0.1	<0.1	0	200	0
			2-methylnaphthalene	mg/kg	0.1	<0.1	0	200	0
			1-methylnaphthalene	mg/kg	0.1	<0.1	0	200	0
			Acenaphthylene	mg/kg	0.1	<0.1	0	200	0
			Acenaphthene	mg/kg	0.1	<0.1	0	200	0
			Fluorene	mg/kg	0.1	<0.1	0	200	0
			Phenanthrene	mg/kg	0.1	<0.1	0.02	200	0
			Anthracene	mg/kg	0.1	<0.1	0.02	200	0
			Fluoranthene	mg/kg	0.1	<0.1	0.02	200	0
			Pyrene	mg/kg	0.1	<0.1	0.02	200	0
			Benzo(a)anthracene	mg/kg	0.1	<0.1	0.01	200	0
			Chrysene	mg/kg	0.1	<0.1	0.02	200	0
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	0.03	200	0
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	0.02	200	0
			Benzo(a)pyrene	mg/kg	0.1	<0.1	0.01	200	0
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	0	200	0
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	0	200	0
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	0.01	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	0	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued) — Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178319.017	LB146373.026		Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	0.242	134	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	0.121	175	0
			Total PAH (18)	mg/kg	0.8	<0.8	0	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.47	30	2
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.49	30	6
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.6	0.57	30	2

PCBs in Soil — Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178319.008	LB146373.026		Arochlor 1016	mg/kg	0.2	<0.2	0	200	0
			Arochlor 1221	mg/kg	0.2	<0.2	0	200	0
			Arochlor 1232	mg/kg	0.2	<0.2	0	200	0
			Arochlor 1242	mg/kg	0.2	<0.2	0	200	0
			Arochlor 1248	mg/kg	0.2	<0.2	0	200	0
			Arochlor 1254	mg/kg	0.2	<0.2	0	200	0
			Arochlor 1260	mg/kg	0.2	<0.2	0	200	0
			Arochlor 1262	mg/kg	0.2	<0.2	0	200	0
			Arochlor 1268	mg/kg	0.2	<0.2	0	200	0
			Total PCBs (Arochlors)	mg/kg	1	<1	0	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	0.157	30	3
SE178319.017	LB146373.027		Arochlor 1016	mg/kg	0.2	<0.2	0	200	0
			Arochlor 1221	mg/kg	0.2	<0.2	0	200	0
			Arochlor 1232	mg/kg	0.2	<0.2	0	200	0
			Arochlor 1242	mg/kg	0.2	<0.2	0	200	0
			Arochlor 1248	mg/kg	0.2	<0.2	0	200	0
			Arochlor 1254	mg/kg	0.2	<0.2	0	200	0
			Arochlor 1260	mg/kg	0.2	<0.2	0	200	0
			Arochlor 1262	mg/kg	0.2	<0.2	0	200	0
			Arochlor 1268	mg/kg	0.2	<0.2	0	200	0
			Total PCBs (Arochlors)	mg/kg	1	<1	0	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	0.156	30	7

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES — Method: ME-(AU)-[ENV]AN040/AN320

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178319.016	LB146547.014		Arsenic, As	mg/kg	3	6	5	49	14
			Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
			Chromium, Cr	mg/kg	0.3	11	8.0	35	31
			Copper, Cu	mg/kg	0.5	8.5	12	35	30
			Nickel, Ni	mg/kg	0.5	2.5	2.7	49	8
			Lead, Pb	mg/kg	1	56	93	31	49 ②
			Zinc, Zn	mg/kg	0.5	50	87	33	55 ②
SE178319.027	LB146547.024		Arsenic, As	mg/kg	3	5	6	48	9
			Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	167	0
			Chromium, Cr	mg/kg	0.3	18	16	33	9
			Copper, Cu	mg/kg	0.5	25	25	32	1
			Nickel, Ni	mg/kg	0.5	11	12	34	9
			Lead, Pb	mg/kg	1	260	310	30	18
			Zinc, Zn	mg/kg	0.5	220	220	31	2

Trace Metals (Dissolved) in Water by ICPMS — Method: ME-(AU)-[ENV]AN318

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178341.001	LB146391.014		Arsenic, As	μg/L	1	2	3	56	7
			Cadmium, Cd	μg/L	0.1	<0.1	<0.1	200	0
			Chromium, Cr	μg/L	1	<1	<1	157	0
			Copper, Cu	μg/L	1	<1	<1	200	0
			Lead, Pb	μg/L	1	<1	<1	200	0
			Nickel, Ni	μg/L	1	<1	<1	200	0
			Zinc, Zn	μg/L	5	21	17	41	16
SE178341.003	LB146391.017		Arsenic, As	μg/L	1	2	2	77	12
			Cadmium, Cd	μg/L	0.1	<0.1	<0.1	200	0
			Chromium, Cr	μg/L	1	<1	<1	200	0
			Copper, Cu	μg/L	1	<1	<1	154	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Trace Metals (Dissolved) in Water by ICPMS (continued)

Method: ME-(AU)-[ENV]AN318

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178341.003	LB146391.017		Lead, Pb	µg/L	1	<1	<1	200	0
			Nickel, Ni	µg/L	1	<1	<1	200	0
			Zinc, Zn	µg/L	5	12	12	58	1

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178319.008	LB146373.026		TRH C10-C14	mg/kg	20	<20	0	200	0
			TRH C15-C28	mg/kg	45	<45	0	200	0
			TRH C29-C36	mg/kg	45	<45	0	200	0
			TRH C37-C40	mg/kg	100	<100	0	200	0
			TRH C10-C36 Total	mg/kg	110	<110	0	200	0
			TRH C10-C40 Total (F bands)	mg/kg	210	<210	0	200	0
		TRH F Bands	TRH >C10-C16	mg/kg	25	<25	0	200	0
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	0	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	0	200	0
			TRH >C34-C40 (F4)	mg/kg	120	<120	0	200	0
SE178319.017	LB146373.025		TRH C10-C14	mg/kg	20	<20	0	200	0
			TRH C15-C28	mg/kg	45	<45	0	200	0
			TRH C29-C36	mg/kg	45	<45	0	200	0
			TRH C37-C40	mg/kg	100	<100	0	200	0
			TRH C10-C36 Total	mg/kg	110	<110	0	200	0
			TRH C10-C40 Total (F bands)	mg/kg	210	<210	0	200	0
		TRH F Bands	TRH >C10-C16	mg/kg	25	<25	0	200	0
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	0	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	0	200	0
			TRH >C34-C40 (F4)	mg/kg	120	<120	0	200	0
	LB146373.027		TRH C10-C14	mg/kg	20	<20	0	200	0
			TRH C15-C28	mg/kg	45	<45	0	200	0
			TRH C29-C36	mg/kg	45	<45	0	200	0
			TRH C37-C40	mg/kg	100	<100	0	200	0
			TRH C10-C36 Total	mg/kg	110	<110	0	200	0
			TRH C10-C40 Total (F bands)	mg/kg	210	<210	0	200	0
		TRH F Bands	TRH >C10-C16	mg/kg	25	<25	0	200	0
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	0	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	0	200	0
			TRH >C34-C40 (F4)	mg/kg	120	<120	0	200	0

TRH (Total Recoverable Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN403

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178356.037	LB146443.015		TRH C10-C14	µg/L	50	<50	0	200	0
			TRH C15-C28	µg/L	200	<200	0	200	0
			TRH C29-C36	µg/L	200	<200	0	200	0
			TRH C37-C40	µg/L	200	<200	0	200	0
			TRH C10-C36	µg/L	450	<450	0	200	0
			TRH C10-C40	µg/L	650	<650	0	200	0
		TRH F Bands	TRH >C10-C16	µg/L	60	<60	0	200	0
			TRH >C16-C34 (F3)	µg/L	500	<500	0	200	0
			TRH >C34-C40 (F4)	µg/L	500	<500	0	200	0

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178319.021	LB146528.014	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.3	4.3	50	0
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.1	4.2	50	2
			d8-toluene (Surrogate)	mg/kg	-	5.9	6.0	50	2
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.0	3.9	50	3
		Totals	Total Xylenes	mg/kg	0.3	<0.3	<0.3	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178319.021	LB146528.014	Totals	Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0
SE178319.027	LB146528.022	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1	0.01	200	0
			Toluene	mg/kg	0.1	<0.1	0.01	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	0	200	0
			m/p-xylene	mg/kg	0.2	<0.2	0	200	0
			o-xylene	mg/kg	0.1	<0.1	0	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	0.01	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.7	3.89	50	4
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	3.6	3.84	50	5
			d8-toluene (Surrogate)	mg/kg	-	5.7	5.87	50	3
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.7	3.85	50	3
		Totals	Total Xylenes	mg/kg	0.3	<0.3	0	200	0
			Total BTEX	mg/kg	0.6	<0.6	0.02	200	0

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178222.001	LB146370.020	Monocyclic Aromatic	Benzene	µg/L	0.5	0.03	0.04	200	0
			Toluene	µg/L	0.5	0.01	0.03	200	0
			Ethylbenzene	µg/L	0.5	0.01	0.01	200	0
			m/p-xylene	µg/L	1	0.01	0.01	200	0
			o-xylene	µg/L	0.5	0.01	0.01	200	0
		Polycyclic	Naphthalene	µg/L	0.5	0.02	0.02	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	3.9	5.07	30	26
			d4-1,2-dichloroethane (Surrogate)	µg/L	-	4.47	5.55	30	22
			d8-toluene (Surrogate)	µg/L	-	4.09	4.13	30	1
			Bromofluorobenzene (Surrogate)	µg/L	-	3.79	4.3	30	13
SE178319.028	LB146370.021	Monocyclic Aromatic	Benzene	µg/L	0.5	<0.5	0.04	200	0
			Toluene	µg/L	0.5	<0.5	0.12	200	0
			Ethylbenzene	µg/L	0.5	<0.5	0.01	200	0
			m/p-xylene	µg/L	1	<1	0.01	200	0
			o-xylene	µg/L	0.5	<0.5	0.01	200	0
		Polycyclic	Naphthalene	µg/L	0.5	<0.5	0.02	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	5.8	5.53	30	4
			d4-1,2-dichloroethane (Surrogate)	µg/L	-	6.1	5.57	30	8
			d8-toluene (Surrogate)	µg/L	-	4.3	4.17	30	3
			Bromofluorobenzene (Surrogate)	µg/L	-	3.9	3.94	30	0

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178319.021	LB146528.014		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.3	4.3	30	0
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.1	4.2	30	2
			d8-toluene (Surrogate)	mg/kg	-	5.9	6.0	30	2
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.0	3.9	30	3
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0
SE178319.027	LB146528.022		TRH C6-C10	mg/kg	25	<25	1.24	200	0
			TRH C6-C9	mg/kg	20	<20	0.73	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.7	3.89	30	4
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	3.6	3.84	30	5
			d8-toluene (Surrogate)	mg/kg	-	5.7	5.87	30	3
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.7	3.85	30	3
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	0.01	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	1.22	200	0

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178222.001	LB146370.020		TRH C6-C10	µg/L	50	0	0	200	0
			TRH C6-C9	µg/L	40	0	0	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	3.9	5.07	30	26
			d4-1,2-dichloroethane (Surrogate)	µg/L	-	4.47	5.55	30	22

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Volatile Petroleum Hydrocarbons in Water (continued) Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178222.001	LB146370.020	Surrogates	d8-toluene (Surrogate)	µg/L	-	4.09	4.13	30	1
			Bromofluorobenzene (Surrogate)	µg/L	-	3.79	4.3	30	13
		VPH F Bands	Benzene (F0)	µg/L	0.5	0.03	0.04	200	0
			TRH C6-C10 minus BTEX (F1)	µg/L	50	-0.07	-0.1	200	0
SE178319.028	LB146370.021		TRH C6-C10	µg/L	50	<50	0	200	0
			TRH C6-C9	µg/L	40	<40	0	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	5.8	5.53	30	4
			d4-1,2-dichloroethane (Surrogate)	µg/L	-	6.1	5.57	30	8
			d8-toluene (Surrogate)	µg/L	-	4.3	4.17	30	3
			Bromofluorobenzene (Surrogate)	µg/L	-	3.9	3.94	30	0
		VPH F Bands	Benzene (F0)	µg/L	0.5	<0.5	0.04	200	0
			TRH C6-C10 minus BTEX (F1)	µg/L	50	<50	-0.19	200	0

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB146571.002		Mercury	mg/kg	0.05	0.20	0.2	70 - 130	102

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB146373.002		Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	107
		Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	109
		Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	91
		Dieldrin	mg/kg	0.2	0.2	0.2	60 - 140	112
		Endrin	mg/kg	0.2	0.2	0.2	60 - 140	121
		p,p'-DDT	mg/kg	0.1	0.2	0.2	60 - 140	81
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.16	0.15	40 - 130	103

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB146373.002		Dichlorvos	mg/kg	0.5	1.8	2	60 - 140	92
		Diazinon (Dimpylate)	mg/kg	0.5	1.7	2	60 - 140	87
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	1.7	2	60 - 140	85
		Ethion	mg/kg	0.2	1.6	2	60 - 140	81
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	98
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	98

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB146373.002		Naphthalene	mg/kg	0.1	4.0	4	60 - 140	99
		Acenaphthylene	mg/kg	0.1	3.8	4	60 - 140	94
		Acenaphthene	mg/kg	0.1	3.9	4	60 - 140	97
		Phenanthrene	mg/kg	0.1	4.1	4	60 - 140	103
		Anthracene	mg/kg	0.1	4.1	4	60 - 140	103
		Fluoranthene	mg/kg	0.1	3.8	4	60 - 140	95
		Pyrene	mg/kg	0.1	3.7	4	60 - 140	92
		Benzo(a)pyrene	mg/kg	0.1	4.3	4	60 - 140	108
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	94
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	98
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	98

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB146373.002		Arochlor 1260	mg/kg	0.2	0.5	0.4	60 - 140	125

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB146547.002		Arsenic, As	mg/kg	3	330	336.32	79 - 120	98
		Cadmium, Cd	mg/kg	0.3	430	416.6	69 - 131	102
		Chromium, Cr	mg/kg	0.3	34	35.2	80 - 120	97
		Copper, Cu	mg/kg	0.5	310	370.46	80 - 120	85
		Nickel, Ni	mg/kg	0.5	180	210.88	79 - 120	86
		Lead, Pb	mg/kg	1	90	107.87	79 - 120	83
		Zinc, Zn	mg/kg	0.5	270	301.27	80 - 121	90

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB146391.002		Arsenic, As	µg/L	1	19	20	80 - 120	97
		Cadmium, Cd	µg/L	0.1	21	20	80 - 120	107
		Chromium, Cr	µg/L	1	22	20	80 - 120	109
		Copper, Cu	µg/L	1	23	20	80 - 120	113
		Lead, Pb	µg/L	1	22	20	80 - 120	109
		Nickel, Ni	µg/L	1	21	20	80 - 120	107
		Zinc, Zn	µg/L	5	21	20	80 - 120	104

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB146373.002		TRH C10-C14	mg/kg	20	35	40	60 - 140	88
		TRH C15-C28	mg/kg	45	<45	40	60 - 140	88
		TRH C29-C36	mg/kg	45	<45	40	60 - 140	90
	TRH F Bands	TRH >C10-C16	mg/kg	25	35	40	60 - 140	88
		TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	90
		TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	90

TRH (Total Recoverable Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN403

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB146443.002		TRH C10-C14	µg/L	50	1200	1200	60 - 140	96
		TRH C15-C28	µg/L	200	1300	1200	60 - 140	104
		TRH C29-C36	µg/L	200	1300	1200	60 - 140	106
	TRH F Bands	TRH >C10-C16	µg/L	60	1200	1200	60 - 140	96
		TRH >C16-C34 (F3)	µg/L	500	1400	1200	60 - 140	113
		TRH >C34-C40 (F4)	µg/L	500	710	600	60 - 140	118

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB146528.002	Monocyclic	Benzene	mg/kg	0.1	1.8	2.9	60 - 140	62
	Aromatic	Toluene	mg/kg	0.1	2.4	2.9	60 - 140	81
		Ethylbenzene	mg/kg	0.1	2.0	2.9	60 - 140	70
		m/p-xylene	mg/kg	0.2	4.1	5.8	60 - 140	71
		o-xylene	mg/kg	0.1	2.1	2.9	60 - 140	73
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.1	5	60 - 140	82
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.6	5	60 - 140	92
		d8-toluene (Surrogate)	mg/kg	-	6.4	5	60 - 140	129
		Bromofluorobenzene (Surrogate)	mg/kg	-	5.2	5	60 - 140	103

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB146370.002	Monocyclic	Benzene	µg/L	0.5	51	45.45	60 - 140	113
	Aromatic	Toluene	µg/L	0.5	51	45.45	60 - 140	113
		Ethylbenzene	µg/L	0.5	52	45.45	60 - 140	114
		m/p-xylene	µg/L	1	100	90.9	60 - 140	113
		o-xylene	µg/L	0.5	52	45.45	60 - 140	114
	Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	5.0	5	60 - 140	99
		d4-1,2-dichloroethane (Surrogate)	µg/L	-	4.9	5	60 - 140	98
		d8-toluene (Surrogate)	µg/L	-	4.6	5	60 - 140	93
		Bromofluorobenzene (Surrogate)	µg/L	-	5.5	5	60 - 140	110

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB146528.002		TRH C6-C10	mg/kg	25	<25	24.65	60 - 140	88
		TRH C6-C9	mg/kg	20	<20	23.2	60 - 140	85
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.1	5	60 - 140	82
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.6	5	60 - 140	92
		d8-toluene (Surrogate)	mg/kg	-	6.4	5	60 - 140	129
		Bromofluorobenzene (Surrogate)	mg/kg	-	5.2	5	60 - 140	103
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	7.25	60 - 140	127

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB146370.002		TRH C6-C10	µg/L	50	1000	946.63	60 - 140	105
		TRH C6-C9	µg/L	40	820	818.71	60 - 140	100
	Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	4.7	5	60 - 140	95
		d4-1,2-dichloroethane (Surrogate)	µg/L	-	4.6	5	60 - 140	92
		d8-toluene (Surrogate)	µg/L	-	4.8	5	60 - 140	96
		Bromofluorobenzene (Surrogate)	µg/L	-	5.5	5	60 - 140	109
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	µg/L	50	690	639.67	60 - 140	108

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub-sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE178229.001	LB146397.004		Mercury	mg/L	0.0001	0.0076	<0.00005	0.008	95

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE178290.029	LB146571.004		Mercury	mg/kg	0.05	0.22	<0.05	0.2	96

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE178319.016	LB146373.025		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	-	-
			Alpha BHC	mg/kg	0.1	<0.1	<0.1	-	-
			Lindane	mg/kg	0.1	<0.1	<0.1	-	-
			Heptachlor	mg/kg	0.1	0.2	<0.1	0.2	121
			Aldrin	mg/kg	0.1	0.2	<0.1	0.2	123
			Beta BHC	mg/kg	0.1	<0.1	<0.1	-	-
			Delta BHC	mg/kg	0.1	0.2	<0.1	0.2	104
			Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	-	-
			o,p'-DDE	mg/kg	0.1	<0.1	<0.1	-	-
			Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	-	-
			Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	-	-
			Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	-	-
			trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	-	-
			p,p'-DDE	mg/kg	0.1	<0.1	<0.1	-	-
			Dieldrin	mg/kg	0.2	0.2	<0.2	0.2	121
			Endrin	mg/kg	0.2	0.2	<0.2	0.2	122
			o,p'-DDD	mg/kg	0.1	<0.1	<0.1	-	-
			o,p'-DDT	mg/kg	0.1	<0.1	<0.1	-	-
			Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	-	-
			p,p'-DDD	mg/kg	0.1	<0.1	<0.1	-	-
			p,p'-DDT	mg/kg	0.1	0.2	<0.1	0.2	91
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	-	-
			Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	-	-
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	-	-
			Endrin Ketone	mg/kg	0.1	<0.1	<0.1	-	-
			Isodrin	mg/kg	0.1	<0.1	<0.1	-	-
			Mirex	mg/kg	0.1	<0.1	<0.1	-	-
			Total CLP OC Pesticides	mg/kg	1	1	<1	-	-
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.15	0.15	-	101

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE178319.016	LB146373.025		Dichlorvos	mg/kg	0.5	1.6	<0.5	2	78
			Dimethoate	mg/kg	0.5	<0.5	<0.5	-	-
			Diazinon (Dimpylate)	mg/kg	0.5	1.7	<0.5	2	87
			Fenitrothion	mg/kg	0.2	<0.2	<0.2	-	-
			Malathion	mg/kg	0.2	<0.2	<0.2	-	-
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	1.6	<0.2	2	82
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	-	-
			Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	-	-
			Methidathion	mg/kg	0.5	<0.5	<0.5	-	-
			Ethion	mg/kg	0.2	1.6	<0.2	2	79
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	-	-
			Total OP Pesticides*	mg/kg	1.7	6.5	<1.7	-	-
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	-	94
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.6	-	96

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number	Parameter	Units	LOR

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued) — Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE178319.016	LB146373.025		Naphthalene	mg/kg	0.1	4.0	<0.1	4	100
			2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	-
			1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	-
			Acenaphthylene	mg/kg	0.1	3.9	<0.1	4	96
			Acenaphthene	mg/kg	0.1	4.1	<0.1	4	102
			Fluorene	mg/kg	0.1	<0.1	<0.1	-	-
			Phenanthrene	mg/kg	0.1	4.1	<0.1	4	102
			Anthracene	mg/kg	0.1	4.1	<0.1	4	102
			Fluoranthene	mg/kg	0.1	3.9	<0.1	4	96
			Pyrene	mg/kg	0.1	3.7	<0.1	4	93
			Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	-	-
			Chrysene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(a)pyrene	mg/kg	0.1	4.3	<0.1	4	108
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	-	-
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	4.3	<0.2	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	4.5	<0.3	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	4.4	<0.2	-	-
			Total PAH (18)	mg/kg	0.8	32	<0.8	-	-
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	-	94
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	-	94
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.6	-	96

PCBs in Soil — Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE178319.016	LB146373.028		Arochlor 1016	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1221	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1232	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1242	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1248	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1254	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1260	mg/kg	0.2	0.5	<0.2	0.4	124
			Arochlor 1262	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1268	mg/kg	0.2	<0.2	<0.2	-	-
			Total PCBs (Arochlors)	mg/kg	1	<1	<1	-	-
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	0	-	105

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES — Method: ME-(AU)-[ENV]AN040/AN320

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE178290.028	LB146547.004	Arsenic, As	mg/kg	3	50	5	50	89
		Cadmium, Cd	mg/kg	0.3	46	<0.3	50	91
		Chromium, Cr	mg/kg	0.3	52	7.2	50	89
		Copper, Cu	mg/kg	0.5	82	35	50	95
		Nickel, Ni	mg/kg	0.5	62	20	50	84
		Lead, Pb	mg/kg	1	58	15	50	86
		Zinc, Zn	mg/kg	0.5	130	78	50	96

Trace Metals (Dissolved) in Water by ICPMS — Method: ME-(AU)-[ENV]AN318

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE177967A.01	LB146391.004	Copper, Cu	μg/L	1	64	42	20	114
0		Lead, Pb	μg/L	1	22	2	20	101
		Zinc, Zn	μg/L	5	71	50	20	107

TRH (Total Recoverable Hydrocarbons) in Soil — Method: ME-(AU)-[ENV]AN403

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE178319.016	LB146373.028	TRH C10-C14	mg/kg	20	33	<20	40	83
		TRH C15-C28	mg/kg	45	<45	<45	40	78
		TRH C29-C36	mg/kg	45	<45	<45	40	90
		TRH C37-C40	mg/kg	100	<100	<100	-	-

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub-sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

TRH (Total Recoverable Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN403

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE178319.016	LB146373.028		TRH C10-C36 Total	mg/kg	110	<110	<110	-	-
			TRH C10-C40 Total (F bands)	mg/kg	210	<210	<210	-	-
		TRH F Bands	TRH >C10-C16	mg/kg	25	32	<25	40	80
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	32	<25	-	-
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	40	83
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	-	-

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE178319.001	LB146528.004	Monocyclic Aromatic	Benzene	mg/kg	0.1	2.0	<0.1	2.9	69
			Toluene	mg/kg	0.1	2.4	<0.1	2.9	83
			Ethylbenzene	mg/kg	0.1	1.9	<0.1	2.9	67
			m/p-xylene	mg/kg	0.2	4.8	<0.2	5.8	83
			o-xylene	mg/kg	0.1	2.1	<0.1	2.9	71
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	-	-
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	6.1	4.6	-	122
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	6.0	4.0	-	120
			d8-toluene (Surrogate)	mg/kg	-	6.2	3.9	-	124
			Bromofluorobenzene (Surrogate)	mg/kg	-	6.0	4.8	-	120
		Totals	Total Xylenes	mg/kg	0.3	6.9	<0.3	-	-
			Total BTEX	mg/kg	0.6	13	<0.6	-	-

VOCs in Water

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE178222.002	LB146370.022	Monocyclic Aromatic	Benzene	µg/L	0.5	46	0.03	45.45	102
			Toluene	µg/L	0.5	50	0.01	45.45	110
			Ethylbenzene	µg/L	0.5	54	0.01	45.45	119
			m/p-xylene	µg/L	1	110	0.01	90.9	126
			o-xylene	µg/L	0.5	58	0	45.45	127
		Polycyclic	Naphthalene	µg/L	0.5	53	0.02	-	-
		Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	5.1	4.13	-	102
			d4-1,2-dichloroethane (Surrogate)	µg/L	-	5.3	5.63	-	107
			d8-toluene (Surrogate)	µg/L	-	3.9	4.67	-	78
			Bromofluorobenzene (Surrogate)	µg/L	-	5.6	4.13	-	112

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE178319.001	LB146528.004		TRH C6-C10	mg/kg	25	<25	<25	24.65	73
			TRH C6-C9	mg/kg	20	<20	<20	23.2	73
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	6.1	4.6	-	122
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	6.0	4.0	-	120
			d8-toluene (Surrogate)	mg/kg	-	6.2	3.9	-	124
			Bromofluorobenzene (Surrogate)	mg/kg	-	6.0	4.8	-	120
		VPH F Bands	Benzene (F0)	mg/kg	0.1	2.0	<0.1	-	-
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	7.25	68

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE178222.002	LB146370.022		TRH C6-C10	µg/L	50	990	0	946.63	104
			TRH C6-C9	µg/L	40	840	0	818.71	103
		Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	5.1	4.13	-	102
			d4-1,2-dichloroethane (Surrogate)	µg/L	-	5.3	5.63	-	107
			d8-toluene (Surrogate)	µg/L	-	3.9	4.67	-	78
			Bromofluorobenzene (Surrogate)	µg/L	-	5.6	4.13	-	112
		VPH F Bands	Benzene (F0)	µg/L	0.5	46	0.03	-	-
			TRH C6-C10 minus BTEX (F1)	µg/L	50	660	-0.06	639.67	104

MATRIX SPIKE DUPLICATES

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here: http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022 QA QC Plan.pdf

*	NATA accreditation does not cover the performance of this service.
**	Indicative data, theoretical holding time exceeded.
-	Sample not analysed for this analyte.
IS	Insufficient sample for analysis.
LNR	Sample listed, but not received.
LOR	Limit of reporting.
QFH	QC result is above the upper tolerance.
QFL	QC result is below the lower tolerance.

①	At least 2 of 3 surrogates are within acceptance criteria.
②	RPD failed acceptance criteria due to sample heterogeneity.
③	Results less than 5 times LOR preclude acceptance criteria for RPD.
④	Recovery failed acceptance criteria due to matrix interference.
⑤	Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
⑥	LOR was raised due to sample matrix interference.
⑦	LOR was raised due to dilution of significantly high concentration of analyte in sample.
⑧	Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
⑨	Recovery failed acceptance criteria due to sample heterogeneity.
⑩	LOR was raised due to high conductivity of the sample (required dilution).
†	Refer to Analytical Report comments for further information.

STATEMENT OF QA/QC PERFORMANCE

SE178657 R0

CLIENT DETAILS		LABORATORY DETAILS	
Contact	Sharon Li	Manager	Huong Crawford
Client	EI AUSTRALIA	Laboratory	SGS Alexandria Environmental
Address	SUITE 6.01 55 MILLER STREET PYRMONT NSW 2009	Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	61 2 95160722	Telephone	+61 2 8594 0400
Facsimile	(Not specified)	Facsimile	+61 2 8594 0499
Email	sharon.li@eiaustralia.com.au	Email	au.environmental.sydney@sgs.com
Project	**E23796 - 26 Elizabeth St, Liverpool NSW**	SGS Reference	**SE178657 R0**
Order Number	**E23796**	Date Received	03 May 2018
Samples	7	Date Reported	09 May 2018

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document and was supplied by the Client.
This QA/QC Statement must be read in conjunction with the referenced Analytical Report.
The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met with the exception of the following:

Matrix Spike	Trace Metals (Dissolved) in Water by ICPMS	2 items

SAMPLE SUMMARY

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	SGS	Sample cooling method	Ice Bricks
Samples received in correct containers	Yes	Sample counts by matrix	7 Water
Date documentation received	3/5/2018	Type of documentation received	COC
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	12.0°C	Sufficient sample for analysis	Yes
Turnaround time requested	Standard		

HOLDING TIME SUMMARY

SE178657 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M	SE178657.001	LB147394	02 May 2018	03 May 2018	30 May 2018	09 May 2018	30 May 2018	09 May 2018
BH2M	SE178657.002	LB147394	02 May 2018	03 May 2018	30 May 2018	09 May 2018	30 May 2018	09 May 2018
BH8M	SE178657.003	LB147394	02 May 2018	03 May 2018	30 May 2018	09 May 2018	30 May 2018	09 May 2018
GWQD1	SE178657.004	LB147394	02 May 2018	03 May 2018	30 May 2018	09 May 2018	30 May 2018	09 May 2018
GWQR1	SE178657.005	LB147394	02 May 2018	03 May 2018	30 May 2018	09 May 2018	30 May 2018	09 May 2018

Metals in Water (Dissolved) by ICPOES

Method: ME-(AU)-[ENV]AN320

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M	SE178657.001	LB147364	02 May 2018	03 May 2018	29 Oct 2018	08 May 2018	29 Oct 2018	09 May 2018
BH2M	SE178657.002	LB147364	02 May 2018	03 May 2018	29 Oct 2018	08 May 2018	29 Oct 2018	09 May 2018
BH8M	SE178657.003	LB147364	02 May 2018	03 May 2018	29 Oct 2018	08 May 2018	29 Oct 2018	09 May 2018

PAH (Polynuclear Aromatic Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M	SE178657.001	LB147222	02 May 2018	03 May 2018	09 May 2018	07 May 2018	16 Jun 2018	08 May 2018
BH2M	SE178657.002	LB147222	02 May 2018	03 May 2018	09 May 2018	07 May 2018	16 Jun 2018	08 May 2018
BH8M	SE178657.003	LB147222	02 May 2018	03 May 2018	09 May 2018	07 May 2018	16 Jun 2018	08 May 2018
GWQD1	SE178657.004	LB147222	02 May 2018	03 May 2018	09 May 2018	07 May 2018	16 Jun 2018	08 May 2018
GWQR1	SE178657.005	LB147222	02 May 2018	03 May 2018	09 May 2018	07 May 2018	16 Jun 2018	08 May 2018

Total Phenolics in Water

Method: ME-(AU)-[ENV]AN289

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M	SE178657.001	LB147167	02 May 2018	03 May 2018	30 May 2018	07 May 2018	30 May 2018	07 May 2018
BH2M	SE178657.002	LB147167	02 May 2018	03 May 2018	30 May 2018	07 May 2018	30 May 2018	07 May 2018
BH8M	SE178657.003	LB147167	02 May 2018	03 May 2018	30 May 2018	07 May 2018	30 May 2018	07 May 2018

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M	SE178657.001	LB147330	02 May 2018	03 May 2018	29 Oct 2018	08 May 2018	29 Oct 2018	08 May 2018
BH2M	SE178657.002	LB147330	02 May 2018	03 May 2018	29 Oct 2018	08 May 2018	29 Oct 2018	08 May 2018
BH8M	SE178657.003	LB147330	02 May 2018	03 May 2018	29 Oct 2018	08 May 2018	29 Oct 2018	08 May 2018
GWQD1	SE178657.004	LB147330	02 May 2018	03 May 2018	29 Oct 2018	08 May 2018	29 Oct 2018	08 May 2018
GWQR1	SE178657.005	LB147330	02 May 2018	03 May 2018	29 Oct 2018	08 May 2018	29 Oct 2018	08 May 2018

TRH (Total Recoverable Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN403

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M	SE178657.001	LB147222	02 May 2018	03 May 2018	09 May 2018	07 May 2018	16 Jun 2018	08 May 2018
BH2M	SE178657.002	LB147222	02 May 2018	03 May 2018	09 May 2018	07 May 2018	16 Jun 2018	08 May 2018
BH8M	SE178657.003	LB147222	02 May 2018	03 May 2018	09 May 2018	07 May 2018	16 Jun 2018	08 May 2018
GWQD1	SE178657.004	LB147222	02 May 2018	03 May 2018	09 May 2018	07 May 2018	16 Jun 2018	08 May 2018
GWQR1	SE178657.005	LB147222	02 May 2018	03 May 2018	09 May 2018	07 May 2018	16 Jun 2018	08 May 2018

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M	SE178657.001	LB147166	02 May 2018	03 May 2018	09 May 2018	07 May 2018	16 Jun 2018	08 May 2018
BH2M	SE178657.002	LB147166	02 May 2018	03 May 2018	09 May 2018	07 May 2018	16 Jun 2018	08 May 2018
BH8M	SE178657.003	LB147166	02 May 2018	03 May 2018	09 May 2018	07 May 2018	16 Jun 2018	08 May 2018
GWQD1	SE178657.004	LB147166	02 May 2018	03 May 2018	09 May 2018	07 May 2018	16 Jun 2018	08 May 2018
GWQR1	SE178657.005	LB147166	02 May 2018	03 May 2018	09 May 2018	07 May 2018	16 Jun 2018	08 May 2018
GWTS1	SE178657.006	LB147166	02 May 2018	03 May 2018	09 May 2018	07 May 2018	16 Jun 2018	08 May 2018
GWTB1	SE178657.007	LB147166	02 May 2018	03 May 2018	09 May 2018	07 May 2018	16 Jun 2018	08 May 2018

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M	SE178657.001	LB147166	02 May 2018	03 May 2018	09 May 2018	07 May 2018	16 Jun 2018	08 May 2018
BH2M	SE178657.002	LB147166	02 May 2018	03 May 2018	09 May 2018	07 May 2018	16 Jun 2018	08 May 2018
BH8M	SE178657.003	LB147166	02 May 2018	03 May 2018	09 May 2018	07 May 2018	16 Jun 2018	08 May 2018
GWQD1	SE178657.004	LB147166	02 May 2018	03 May 2018	09 May 2018	07 May 2018	16 Jun 2018	08 May 2018
GWQR1	SE178657.005	LB147166	02 May 2018	03 May 2018	09 May 2018	07 May 2018	16 Jun 2018	08 May 2018
GWTS1	SE178657.006	LB147166	02 May 2018	03 May 2018	09 May 2018	07 May 2018	16 Jun 2018	08 May 2018
GWTB1	SE178657.007	LB147166	02 May 2018	03 May 2018	09 May 2018	07 May 2018	16 Jun 2018	08 May 2018

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	BH1M	SE178657.001	%	40 - 130%	62
	BH2M	SE178657.002	%	40 - 130%	66
	BH8M	SE178657.003	%	40 - 130%	62
d14-p-terphenyl (Surrogate)	BH1M	SE178657.001	%	40 - 130%	74
	BH2M	SE178657.002	%	40 - 130%	70
	BH8M	SE178657.003	%	40 - 130%	74
d5-nitrobenzene (Surrogate)	BH1M	SE178657.001	%	40 - 130%	56
	BH2M	SE178657.002	%	40 - 130%	58
	BH8M	SE178657.003	%	40 - 130%	56

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH1M	SE178657.001	%	40 - 130%	102
	BH2M	SE178657.002	%	40 - 130%	111
	BH8M	SE178657.003	%	40 - 130%	102
	GWQD1	SE178657.004	%	40 - 130%	83
	GWQR1	SE178657.005	%	40 - 130%	80
	GWTS1	SE178657.006	%	40 - 130%	116
	GWTB1	SE178657.007	%	40 - 130%	84
d4-1,2-dichloroethane (Surrogate)	BH1M	SE178657.001	%	40 - 130%	109
	BH2M	SE178657.002	%	40 - 130%	118
	BH8M	SE178657.003	%	40 - 130%	112
	GWQD1	SE178657.004	%	40 - 130%	123
	GWQR1	SE178657.005	%	40 - 130%	106
	GWTS1	SE178657.006	%	40 - 130%	98
	GWTB1	SE178657.007	%	40 - 130%	114
d8-toluene (Surrogate)	BH1M	SE178657.001	%	40 - 130%	90
	BH2M	SE178657.002	%	40 - 130%	100
	BH8M	SE178657.003	%	40 - 130%	98
	GWQD1	SE178657.004	%	40 - 130%	107
	GWQR1	SE178657.005	%	40 - 130%	83
	GWTS1	SE178657.006	%	40 - 130%	96
	GWTB1	SE178657.007	%	40 - 130%	90
Dibromofluoromethane (Surrogate)	BH1M	SE178657.001	%	40 - 130%	115
	BH2M	SE178657.002	%	40 - 130%	109
	BH8M	SE178657.003	%	40 - 130%	105
	GWQD1	SE178657.004	%	40 - 130%	126
	GWQR1	SE178657.005	%	40 - 130%	104
	GWTS1	SE178657.006	%	40 - 130%	101
	GWTB1	SE178657.007	%	40 - 130%	111

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH1M	SE178657.001	%	40 - 130%	76
	BH2M	SE178657.002	%	40 - 130%	85
	BH8M	SE178657.003	%	40 - 130%	87
	GWQD1	SE178657.004	%	40 - 130%	83
	GWQR1	SE178657.005	%	40 - 130%	80
d4-1,2-dichloroethane (Surrogate)	BH1M	SE178657.001	%	60 - 130%	118
	BH2M	SE178657.002	%	60 - 130%	128
	BH8M	SE178657.003	%	60 - 130%	122
	GWQD1	SE178657.004	%	60 - 130%	123
	GWQR1	SE178657.005	%	60 - 130%	106
d8-toluene (Surrogate)	BH1M	SE178657.001	%	40 - 130%	102
	BH2M	SE178657.002	%	40 - 130%	100
	BH8M	SE178657.003	%	40 - 130%	91
	GWQD1	SE178657.004	%	40 - 130%	107
	GWQR1	SE178657.005	%	40 - 130%	83
Dibromofluoromethane (Surrogate)	BH1M	SE178657.001	%	40 - 130%	127
	BH2M	SE178657.002	%	40 - 130%	120
	BH8M	SE178657.003	%	40 - 130%	115
	GWQD1	SE178657.004	%	40 - 130%	126

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Volatile Petroleum Hydrocarbons in Water (continued)

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Dibromofluoromethane (Surrogate)	GWQR1	SE178657.005	%	40 - 130%	104

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Sample Number		Parameter	Units	LOR	Result
LB147394.001		Mercury	mg/L	0.0001	<0.0001

PAH (Polynuclear Aromatic Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB147222.001		Naphthalene	µg/L	0.1	<0.1
		2-methylnaphthalene	µg/L	0.1	<0.1
		1-methylnaphthalene	µg/L	0.1	<0.1
		Acenaphthylene	µg/L	0.1	<0.1
		Acenaphthene	µg/L	0.1	<0.1
		Fluorene	µg/L	0.1	<0.1
		Phenanthrene	µg/L	0.1	<0.1
		Anthracene	µg/L	0.1	<0.1
		Fluoranthene	µg/L	0.1	<0.1
		Pyrene	µg/L	0.1	<0.1
		Benzo(a)anthracene	µg/L	0.1	<0.1
		Chrysene	µg/L	0.1	<0.1
		Benzo(a)pyrene	µg/L	0.1	<0.1
		Indeno(1,2,3-cd)pyrene	µg/L	0.1	<0.1
		Dibenzo(ah)anthracene	µg/L	0.1	<0.1
		Benzo(ghi)perylene	µg/L	0.1	<0.1
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	64
		2-fluorobiphenyl (Surrogate)	%	-	60
		d14-p-terphenyl (Surrogate)	%	-	66

Total Phenolics in Water

Method: ME-(AU)-[ENV]AN289

Sample Number		Parameter	Units	LOR	Result
LB147167.001		Total Phenols	mg/L	0.01	<0.01

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number		Parameter	Units	LOR	Result
LB147330.001		Aluminium, Al	µg/L	5	<5
		Arsenic, As	µg/L	1	<1
		Cadmium, Cd	µg/L	0.1	<0.1
		Chromium, Cr	µg/L	1	<1
		Copper, Cu	µg/L	1	<1
		Lead, Pb	µg/L	1	<1
		Nickel, Ni	µg/L	1	<1
		Zinc, Zn	µg/L	5	<5

TRH (Total Recoverable Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN403

Sample Number		Parameter	Units	LOR	Result
LB147222.001		TRH C10-C14	µg/L	50	<50
		TRH C15-C28	µg/L	200	<200
		TRH C29-C36	µg/L	200	<200
		TRH C37-C40	µg/L	200	<200

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB147166.001	Fumigants	2,2-dichloropropane	µg/L	0.5	<0.5
		1,2-dichloropropane	µg/L	0.5	<0.5
		cis-1,3-dichloropropene	µg/L	0.5	<0.5
		trans-1,3-dichloropropene	µg/L	0.5	<0.5
		1,2-dibromoethane (EDB)	µg/L	0.5	<0.5
	Halogenated Aliphatics	Dichlorodifluoromethane (CFC-12)	µg/L	5	<5
		Chloromethane	µg/L	5	<5
		Vinyl chloride (Chloroethene)	µg/L	0.3	<0.3
		Bromomethane	µg/L	10	<10
		Chloroethane	µg/L	5	<5
		Trichlorofluoromethane	µg/L	1	<1

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

VOCs in Water (continued)

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB147166.001	Halogenated Aliphatics	Iodomethane	µg/L	5	<5
		1,1-dichloroethene	µg/L	0.5	<0.5
		Dichloromethane (Methylene chloride)	µg/L	5	<5
		Allyl chloride	µg/L	2	<2
		trans-1,2-dichloroethene	µg/L	0.5	<0.5
		1,1-dichloroethane	µg/L	0.5	<0.5
		cis-1,2-dichloroethene	µg/L	0.5	<0.5
		Bromochloromethane	µg/L	0.5	<0.5
		1,2-dichloroethane	µg/L	0.5	<0.5
		1,1,1-trichloroethane	µg/L	0.5	<0.5
		1,1-dichloropropene	µg/L	0.5	<0.5
		Carbon tetrachloride	µg/L	0.5	<0.5
		Dibromomethane	µg/L	0.5	<0.5
		Trichloroethene (Trichloroethylene,TCE)	µg/L	0.5	<0.5
		1,1,2-trichloroethane	µg/L	0.5	<0.5
		1,3-dichloropropane	µg/L	0.5	<0.5
		Tetrachloroethene (Perchloroethylene,PCE)	µg/L	0.5	<0.5
		1,1,1,2-tetrachloroethane	µg/L	0.5	<0.5
		cis-1,4-dichloro-2-butene	µg/L	1	<1
		1,1,2,2-tetrachloroethane	µg/L	0.5	<0.5
		1,2,3-trichloropropane	µg/L	0.5	<0.5
		trans-1,4-dichloro-2-butene	µg/L	1	<1
		1,2-dibromo-3-chloropropane	µg/L	0.5	<0.5
		Hexachlorobutadiene	µg/L	0.5	<0.5
	Halogenated Aromatics	Chlorobenzene	µg/L	0.5	<0.5
		Bromobenzene	µg/L	0.5	<0.5
		2-chlorotoluene	µg/L	0.5	<0.5
		4-chlorotoluene	µg/L	0.5	<0.5
		1,3-dichlorobenzene	µg/L	0.5	<0.5
		1,4-dichlorobenzene	µg/L	0.3	<0.3
		1,2-dichlorobenzene	µg/L	0.5	<0.5
		1,2,4-trichlorobenzene	µg/L	0.5	<0.5
		1,2,3-trichlorobenzene	µg/L	0.5	<0.5
	Monocyclic Aromatic Hydrocarbons	Benzene	µg/L	0.5	<0.5
		Toluene	µg/L	0.5	<0.5
		Ethylbenzene	µg/L	0.5	<0.5
		m/p-xylene	µg/L	1	<1
		o-xylene	µg/L	0.5	<0.5
		Styrene (Vinyl benzene)	µg/L	0.5	<0.5
		Isopropylbenzene (Cumene)	µg/L	0.5	<0.5
		n-propylbenzene	µg/L	0.5	<0.5
		1,3,5-trimethylbenzene	µg/L	0.5	<0.5
		tert-butylbenzene	µg/L	0.5	<0.5
		1,2,4-trimethylbenzene	µg/L	0.5	<0.5
		sec-butylbenzene	µg/L	0.5	<0.5
		p-isopropyltoluene	µg/L	0.5	<0.5
		n-butylbenzene	µg/L	0.5	<0.5
	Nitrogenous Compounds	Acrylonitrile	µg/L	0.5	<0.5
	Oxygenated Compounds	Acetone (2-propanone)	µg/L	10	<10
		MtBE (Methyl-tert-butyl ether)	µg/L	2	<2
		Vinyl acetate	µg/L	10	<10
		MEK (2-butanone)	µg/L	10	<10
		MIBK (4-methyl-2-pentanone)	µg/L	5	<5
		2-hexanone (MBK)	µg/L	5	<5
	Polycyclic VOCs	Naphthalene	µg/L	0.5	<0.5
	Sulphonated	Carbon disulfide	µg/L	2	<2
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	109
		d4-1,2-dichloroethane (Surrogate)	%	-	106
		d8-toluene (Surrogate)	%	-	86
		Bromofluorobenzene (Surrogate)	%	-	93
	Trihalomethanes	Chloroform (THM)	µg/L	0.5	<0.5

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

VOCs in Water (continued)

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB147166.001	Trihalomethanes	Bromodichloromethane (THM)	µg/L	0.5	<0.5
		Dibromochloromethane (THM)	µg/L	0.5	<0.5
		Bromoform (THM)	µg/L	0.5	<0.5

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB147166.001		TRH C6-C9	µg/L	40	<40
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	114
		d4-1,2-dichloroethane (Surrogate)	%	-	115
		d8-toluene (Surrogate)	%	-	95
		Bromofluorobenzene (Surrogate)	%	-	76

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178639.004	LB147394.014	Mercury	µg/L	0.0001	<0.0001	<0.0001	153	0
SE178827.010	LB147394.024	Mercury	µg/L	0.0001	-0.039	-0.0372	146	0

Total Phenolics in Water

Method: ME-(AU)-[ENV]AN289

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178657.001	LB147167.004	Total Phenols	mg/L	0.01	<0.01	<0.01	200	0

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178658.005	LB147330.014	Aluminium, Al	µg/L	5	-2.051	-1.634	200	0
		Arsenic, As	µg/L	1	-0.007	-0.011	200	0
		Cadmium, Cd	µg/L	0.1	0	0	200	0
		Chromium, Cr	µg/L	1	0.583	0.638	179	0
		Copper, Cu	µg/L	1	0.01	0.048	200	0
		Lead, Pb	µg/L	1	-0.144	-0.147	200	0
		Nickel, Ni	µg/L	1	-0.044	-0.062	200	0
		Zinc, Zn	µg/L	5	-0.225	0.034	200	0
SE178777.004	LB147330.018	Arsenic, As	µg/L	1	<1	<1	200	0
		Cadmium, Cd	µg/L	0.1	<0.1	<0.1	200	0
		Chromium, Cr	µg/L	1	<1	<1	200	0
		Copper, Cu	µg/L	1	<1	<1	200	0
		Lead, Pb	µg/L	1	<1	<1	200	0
		Nickel, Ni	µg/L	1	<1	<1	200	0
		Zinc, Zn	µg/L	5	<5	<5	200	0

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178658.001	LB147166.023	Fumigants	2,2-dichloropropane	µg/L	0.5	0	0	200	0
			1,2-dichloropropane	µg/L	0.5	0	0	200	0
			cis-1,3-dichloropropene	µg/L	0.5	0	0	200	0
			trans-1,3-dichloropropene	µg/L	0.5	0	0	200	0
			1,2-dibromoethane (EDB)	µg/L	0.5	0	0	200	0
		Halogenated Aliphatics	Dichlorodifluoromethane (CFC-12)	µg/L	5	0	0	200	0
			Chloromethane	µg/L	5	3.7	0	200	0
			Vinyl chloride (Chloroethene)	µg/L	0.3	0	0	200	0
			Bromomethane	µg/L	10	1.14	1.2	200	0
			Chloroethane	µg/L	5	0	0	200	0
			Trichlorofluoromethane	µg/L	1	0	0	200	0
			Iodomethane	µg/L	5	0	0	200	0
			1,1-dichloroethene	µg/L	0.5	0	0	200	0
			Dichloromethane (Methylene chloride)	µg/L	5	0.36	0.13	200	0
			Allyl chloride	µg/L	2	0	0	200	0
			trans-1,2-dichloroethene	µg/L	0.5	0	0	200	0
			1,1-dichloroethane	µg/L	0.5	0	0	200	0
			cis-1,2-dichloroethene	µg/L	0.5	0	0	200	0
			Bromochloromethane	µg/L	0.5	0	0.34	200	0
			1,2-dichloroethane	µg/L	0.5	0	0	200	0
			1,1,1-trichloroethane	µg/L	0.5	0	0	200	0
			1,1-dichloropropene	µg/L	0.5	0	0	200	0
			Carbon tetrachloride	µg/L	0.5	0	0	200	0
			Dibromomethane	µg/L	0.5	0	0	200	0
			Trichloroethene (Trichloroethylene,TCE)	µg/L	0.5	0	0	200	0
			1,1,2-trichloroethane	µg/L	0.5	0	0	200	0
			1,3-dichloropropane	µg/L	0.5	0.09	0.11	200	0
			Tetrachloroethene (Perchloroethylene,PCE)	µg/L	0.5	0.09	0	200	0
			1,1,1,2-tetrachloroethane	µg/L	0.5	0	0	200	0
			cis-1,4-dichloro-2-butene	µg/L	1	0	0	200	0
			1,1,2,2-tetrachloroethane	µg/L	0.5	0	0	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOCs in Water (continued) — Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178658.001	LB147166.023	Halogenated Aliphatics	1,2,3-trichloropropane	µg/L	0.5	0	0	200	0
			trans-1,4-dichloro-2-butene	µg/L	1	0	0	200	0
			1,2-dibromo-3-chloropropane	µg/L	0.5	0	0	200	0
			Hexachlorobutadiene	µg/L	0.5	0	0	200	0
		Halogenated Aromatics	Chlorobenzene	µg/L	0.5	0.04	0	200	0
			Bromobenzene	µg/L	0.5	0	0	200	0
			2-chlorotoluene	µg/L	0.5	0	0	200	0
			4-chlorotoluene	µg/L	0.5	0	0	200	0
			1,3-dichlorobenzene	µg/L	0.5	0	0	200	0
			1,4-dichlorobenzene	µg/L	0.3	0	0	200	0
			1,2-dichlorobenzene	µg/L	0.5	0	0	200	0
			1,2,4-trichlorobenzene	µg/L	0.5	0	0	200	0
			1,2,3-trichlorobenzene	µg/L	0.5	0	0	200	0
		Monocyclic Aromatic	Benzene	µg/L	0.5	0.04	0.09	200	0
			Toluene	µg/L	0.5	0.05	0.06	200	0
			Ethylbenzene	µg/L	0.5	0.03	0.02	200	0
			m/p-xylene	µg/L	1	0.04	0.03	200	0
			o-xylene	µg/L	0.5	0.02	0.02	200	0
			Styrene (Vinyl benzene)	µg/L	0.5	0	0.03	200	0
			Isopropylbenzene (Cumene)	µg/L	0.5	0	0.02	200	0
			n-propylbenzene	µg/L	0.5	0	0	200	0
			1,3,5-trimethylbenzene	µg/L	0.5	0	0	200	0
			tert-butylbenzene	µg/L	0.5	0	0	200	0
			1,2,4-trimethylbenzene	µg/L	0.5	0	0	200	0
			sec-butylbenzene	µg/L	0.5	0	0	200	0
			p-isopropyltoluene	µg/L	0.5	0	0	200	0
			n-butylbenzene	µg/L	0.5	0	0	200	0
		Nitrogenous	Acrylonitrile	µg/L	0.5	0	0	200	0
		Oxygenated Compounds	Acetone (2-propanone)	µg/L	10	1.41	2.38	200	0
			MtBE (Methyl-tert-butyl ether)	µg/L	2	0	0	200	0
			Vinyl acetate	µg/L	10	0	0.79	200	0
			MEK (2-butanone)	µg/L	10	0	0	200	0
			MIBK (4-methyl-2-pentanone)	µg/L	5	0	0	200	0
			2-hexanone (MBK)	µg/L	5	0	0	200	0
		Polycyclic	Naphthalene	µg/L	0.5	0.48	0.02	200	0
		Sulphonated	Carbon disulfide	µg/L	2	0	0.03	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	5.47	5.6	30	2
			d4-1,2-dichloroethane (Surrogate)	µg/L	-	5.09	5.09	30	0
			d8-toluene (Surrogate)	µg/L	-	4.46	4.54	30	2
			Bromofluorobenzene (Surrogate)	µg/L	-	4.9	4.44	30	10
		Trihalomethanes	Chloroform (THM)	µg/L	0.5	1.83	2.15	55	16
			Bromodichloromethane (THM)	µg/L	0.5	0	0	200	0
			Dibromochloromethane (THM)	µg/L	0.5	0	0	200	0
			Bromoform (THM)	µg/L	0.5	0	0	200	0
SE178658.004	LB147166.024	Monocyclic Aromatic	Benzene	µg/L	0.5	0.04	0.08	200	0
			Toluene	µg/L	0.5	0.04	0.04	200	0
			Ethylbenzene	µg/L	0.5	0.01	0.01	200	0
			m/p-xylene	µg/L	1	0.01	0.02	200	0
			o-xylene	µg/L	0.5	0.01	0.01	200	0
		Polycyclic	Naphthalene	µg/L	0.5	0.15	0.01	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	6.21	5.87	30	6
			d4-1,2-dichloroethane (Surrogate)	µg/L	-	6.09	5.37	30	13
			d8-toluene (Surrogate)	µg/L	-	5.24	5.25	30	0
			Bromofluorobenzene (Surrogate)	µg/L	-	4.08	5.03	30	21

Volatile Petroleum Hydrocarbons in Water — Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178658.001	LB147166.023		TRH C6-C10	µg/L	50	0	0	200	0
			TRH C6-C9	µg/L	40	0	0	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	6.04	5.66	30	6
			d4-1,2-dichloroethane (Surrogate)	µg/L	-	5.52	5.24	30	5

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Volatile Petroleum Hydrocarbons in Water (continued) Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178658.001	LB147166.023	Surrogates	d8-toluene (Surrogate)	µg/L	-	4.85	4.94	30	2
			Bromofluorobenzene (Surrogate)	µg/L	-	3.61	4.47	30	21
		VPH F Bands	Benzene (F0)	µg/L	0.5	0.04	0.09	200	0
			TRH C6-C10 minus BTEX (F1)	µg/L	50	-0.15	-0.22	200	0
SE178658.004	LB147166.024		TRH C6-C10	µg/L	50	0	0	200	0
			TRH C6-C9	µg/L	40	0	0	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	6.21	5.87	30	6
			d4-1,2-dichloroethane (Surrogate)	µg/L	-	6.09	5.37	30	13
			d8-toluene (Surrogate)	µg/L	-	5.24	5.25	30	0
			Bromofluorobenzene (Surrogate)	µg/L	-	4.08	5.03	30	21
		VPH F Bands	Benzene (F0)	µg/L	0.5	0.04	0.08	200	0
			TRH C6-C10 minus BTEX (F1)	µg/L	50	-0.11	-0.16	200	0

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

PAH (Polynuclear Aromatic Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB147222.002		Naphthalene	µg/L	0.1	26	40	60 - 140	64
		Acenaphthylene	µg/L	0.1	29	40	60 - 140	72
		Acenaphthene	µg/L	0.1	28	40	60 - 140	71
		Phenanthrene	µg/L	0.1	32	40	60 - 140	79
		Anthracene	µg/L	0.1	29	40	60 - 140	73
		Fluoranthene	µg/L	0.1	31	40	60 - 140	77
		Pyrene	µg/L	0.1	31	40	60 - 140	77
		Benzo(a)pyrene	µg/L	0.1	34	40	60 - 140	84
	Surrogates	d5-nitrobenzene (Surrogate)	µg/L	-	0.3	0.5	40 - 130	62
		2-fluorobiphenyl (Surrogate)	µg/L	-	0.3	0.5	40 - 130	62
		d14-p-terphenyl (Surrogate)	µg/L	-	0.3	0.5	40 - 130	66

Total Phenolics in Water

Method: ME-(AU)-[ENV]AN289

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB147167.002	Total Phenols	mg/L	0.01	0.23	0.25	80 - 120	92

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB147330.002	Aluminium, Al	µg/L	5	18	20	80 - 120	90
	Arsenic, As	µg/L	1	20	20	80 - 120	98
	Cadmium, Cd	µg/L	0.1	24	20	80 - 120	120
	Chromium, Cr	µg/L	1	20	20	80 - 120	102
	Copper, Cu	µg/L	1	21	20	80 - 120	106
	Lead, Pb	µg/L	1	24	20	80 - 120	119
	Nickel, Ni	µg/L	1	21	20	80 - 120	106
	Zinc, Zn	µg/L	5	21	20	80 - 120	103

TRH (Total Recoverable Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN403

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB147222.002		TRH C10-C14	µg/L	50	950	1200	60 - 140	79
		TRH C15-C28	µg/L	200	1100	1200	60 - 140	95
		TRH C29-C36	µg/L	200	1200	1200	60 - 140	99
	TRH F Bands	TRH >C10-C16	µg/L	60	1000	1200	60 - 140	87
		TRH >C16-C34 (F3)	µg/L	500	1100	1200	60 - 140	96
		TRH >C34-C40 (F4)	µg/L	500	680	600	60 - 140	113

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB147166.002	Halogenated Aliphatics	1,1-dichloroethene	µg/L	0.5	51	45.45	60 - 140	113
		1,2-dichloroethane	µg/L	0.5	50	45.45	60 - 140	111
		Trichloroethene (Trichloroethylene,TCE)	µg/L	0.5	50	45.45	60 - 140	110
	Halogenated	Chlorobenzene	µg/L	0.5	50	45.45	60 - 140	110
	Monocyclic Aromatic	Benzene	µg/L	0.5	51	45.45	60 - 140	112
		Toluene	µg/L	0.5	50	45.45	60 - 140	110
		Ethylbenzene	µg/L	0.5	51	45.45	60 - 140	111
		m/p-xylene	µg/L	1	100	90.9	60 - 140	111
		o-xylene	µg/L	0.5	50	45.45	60 - 140	110
	Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	4.5	5	60 - 140	90
		d4-1,2-dichloroethane (Surrogate)	µg/L	-	4.4	5	60 - 140	87
		d8-toluene (Surrogate)	µg/L	-	4.6	5	60 - 140	93
		Bromofluorobenzene (Surrogate)	µg/L	-	5.8	5	60 - 140	116
	Trihalomethan	Chloroform (THM)	µg/L	0.5	50	45.45	60 - 140	110

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB147166.002		TRH C6-C10	µg/L	50	950	946.63	60 - 140	101
		TRH C6-C9	µg/L	40	720	818.71	60 - 140	88
	Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	5.0	5	60 - 140	101
		d4-1,2-dichloroethane (Surrogate)	µg/L	-	4.8	5	60 - 140	96
		d8-toluene (Surrogate)	µg/L	-	4.8	5	60 - 140	96
		Bromofluorobenzene (Surrogate)	µg/L	-	5.8	5	60 - 140	116

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Volatile Petroleum Hydrocarbons in Water (continued)

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB147166.002	VPH F Bands	TRH C6-C10 minus BTEX (F1)	µg/L	50	620	639.67	60 - 140	97

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE178767.001	LB147394.004	Mercury	mg/L	0.0001	0.0062	<0.00005	0.008	78

Total Phenolics in Water

Method: ME-(AU)-[ENV]AN289

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE178733.001	LB147167.012	Total Phenols	mg/L	0.01	0.74	0.53	0.25	87

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE178657.001	LB147330.004	Aluminium, Al	µg/L	5	33	14	20	92
		Arsenic, As	µg/L	1	26	<1	20	128
		Cadmium, Cd	µg/L	0.1	24	0.2	20	120
		Chromium, Cr	µg/L	1	22	4	20	92
		Copper, Cu	µg/L	1	49	36	20	67 ⑤
		Lead, Pb	µg/L	1	25	3	20	110
		Nickel, Ni	µg/L	1	31	15	20	78
		Zinc, Zn	µg/L	5	100	86	20	66 ⑤

VOCs in Water

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE178657.001	LB147166.025	Monocyclic Aromatic	Benzene	µg/L	0.5	<0.5	45.45	113
			Toluene	µg/L	0.5	<0.5	45.45	112
			Ethylbenzene	µg/L	0.5	<0.5	45.45	119
			m/p-xylene	µg/L	1	<1	90.9	123
			o-xylene	µg/L	0.5	<0.5	45.45	127
		Polycyclic	Naphthalene	µg/L	0.5	<0.5	-	-
		Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	5.8	-	92
			d4-1,2-dichloroethane (Surrogate)	µg/L	-	5.4	-	89
			d8-toluene (Surrogate)	µg/L	-	4.5	-	94
			Bromofluorobenzene (Surrogate)	µg/L	-	5.1	-	99

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE178657.001	LB147166.025		TRH C6-C10	µg/L	50	1000	<50	946.63	106
			TRH C6-C9	µg/L	40	830	<40	818.71	101
		Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	4.6	6.4	-	92
			d4-1,2-dichloroethane (Surrogate)	µg/L	-	4.4	5.9	-	89
			d8-toluene (Surrogate)	µg/L	-	4.7	5.1	-	94
			Bromofluorobenzene (Surrogate)	µg/L	-	5.0	3.8	-	99
		VPH F Bands	Benzene (F0)	µg/L	0.5	51	<0.5	-	-
			TRH C6-C10 minus BTEX (F1)	µg/L	50	670	<50	639.67	105

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here: http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022 QA QC Plan.pdf

*	NATA accreditation does not cover the performance of this service.
**	Indicative data, theoretical holding time exceeded.
-	Sample not analysed for this analyte.
IS	Insufficient sample for analysis.
LNR	Sample listed, but not received.
LOR	Limit of reporting.
QFH	QC result is above the upper tolerance.
QFL	QC result is below the lower tolerance.

①	At least 2 of 3 surrogates are within acceptance criteria.
②	RPD failed acceptance criteria due to sample heterogeneity.
③	Results less than 5 times LOR preclude acceptance criteria for RPD.
④	Recovery failed acceptance criteria due to matrix interference.
⑤	Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
⑥	LOR was raised due to sample matrix interference.
⑦	LOR was raised due to dilution of significantly high concentration of analyte in sample.
⑧	Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
⑨	Recovery failed acceptance criteria due to sample heterogeneity.
⑩	LOR was raised due to high conductivity of the sample (required dilution).
†	Refer to Analytical Report comments for further information.